

RPG RS-232 SERIAL CABLE UPGRADE FOR PPP

DOPPLER METEOROLOGICAL RADAR WSR-88D



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NWS: EHB-6, Modification Note 65
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1. SUBJECT

Radar Product Generator (RPG) Serial Cable Upgrade for Point-to-Point Protocol (PPP).

2. PURPOSE

This document provides instructions to change a limited number of ports from the X.25 protocol to the Point-to-Point Protocol (PPP). This change is required to support an upcoming conversion of the DoD radar display system called the Open Principal User Processor (OPUP) system from X.25 to PPP.

For the NWS configuration, five dedicated ports will be converted from X.25 to PPP. For the DoD/FAA configuration, four dedicated ports will be converted. Additionally, all configurations will have one dial-in port converted at this time. The 3 figures shown in Attachment 8 summarize which ports are being converted by this modification.

Conversion involves re-mapping the modem serial cable from a Performance Technologies Incorporated (PTI) X.25 serial communications controller to a PPP configured serial port on the Cisco 3640 router. Also, the respective modem must be configured to support PPP.

No telecommunication changes will be done with this modification. The telecommunication changes will occur in conjunction with OPUP upgrades and a subsequent RPG modification note.

In the future, an RPG associated modification will be provided to the field completing the serial cable upgrade. The associated modification will provide two more cables to complete the conversion of two DoD dial ports from X.25 to PPP.

Revision 2 of EHB 6-525 provides the documentation change for both modifications. The authority for this modification is ECP 0158, ORPG PPP SERIAL HW FOR DoD.

For additional information concerning this document, contact the Radar Operations Center (ROC) Hotline, Norman, OK; phone number: (800) 643-3363 or (405) 366-2980 or by e-mail at NEXRAD.Hotline@noaa.gov. An electronic copy of this document can be found at the following internet address:
www.roc.noaa.gov/ssb/sysdoc/techman/tmlinks.asp

3. SITES AFFECTED

See [ATTACHMENT 9](#).

4. ESTIMATED COMPLETION DATE

This modification must be reported completed no later than 60 days after receipt of this document and the date the kit was shipped from the National Logistics Support Center (NLSC).

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

5. EQUIPMENT AFFECTED

Radar Product Generator Group.

6. SPARES AFFECTED

Not applicable.

7. MODIFICATION ACCOMPLISHED BY

Site electronics technicians will perform this modification. Two technicians are required to perform this action.

8. MATERIAL REQUIRED

Use [ATTACHMENT 9](#) for kit applicability for your site.

Kit A. (DoD and FAA only)

Nomenclature	Part Number	NSN	Qty
Cable Assembly, Serial RS232 Data Terminal Equipment (DTE)	2200100-201	NWS0-11-210-0027	5

Kit B. (NWS Only)

Nomenclature	Part Number	NSN	Qty
Cable Assembly, Serial RS232 DTE	2200100-201	NWS0-11-210-0027	6

Kit C. (NWS and DoD)

Nomenclature	Part Number	NSN	Qty
Modem, Dedicated Data	1219739-207	5895-01-377-7105	1

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

Kit D. (All Sites)

Nomenclature	Part Number	NSN	Qty
Adapter, Null Modem	2200128-202	5935-01-503-2892	1
Washer, Lock-spring, Helical	MS35338-138	5130-00-933-8120	10 ea.
Washer, Flat	MS15795-808	5310-00-619-1148	10 ea.
Screw, Machine Pan- Head	MS51958-63	5305-00-059-3659	10 ea.
Plate, Mounting, Cable Tie	1218754-202	5975-00-619-7899	10 ea.
Strap, Tiedown, Electrical	MS3367-5-9	5975-00-111-3208	1 pkg
Marker Kit, Cable			1
Serial Module Card	2210022-203	7025-01-457-3548	1
Federal Express Return Label			1

The following common tools/supplies are required to complete the modification:

- Alcohol, isopropyl
- Sponge or paper towel
- Flashlight
- Pliers Set
- Diagonal Cutters 4 inch and 6 inch
- Pliers, miniature cutters
- Screwdriver set, Phillip-tip
- Nut driver set, hex 3/16 inch
- Utility knife
- ESD Wrist Strap
- Current Communications Documentation Notebook

9. SOURCE OF MATERIALS

Kits are requisitioned by the ROC Retrofit Management Team and shipped at no cost to the site.

10. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED

- Transmission Line Test Set AM-48 (SERD 15)

11. TIME AND PERSONNEL REQUIRED

Work Phases	Work-hours
Unpacking	.25
Disassembly	1.0
Installation	6.0
Assembly	0.0
Operational Check	.25
Total Work-hours	7.5

12. DOCUMENTS AFFECTED

Not applicable.

13. VERIFICATION STATEMENT

This modification was successfully installed at Kauai, HI, Altus AFB, OK and WFO Ft Smith, AR.

14. DISPOSITION OF REMOVED AND REPLACED PARTS/MATERIALS

The existing serial cables W273, W287, W288, W289, and W290 removed from the PTI boxes and modems will be disposed of locally, in accordance with local procedures.

The old serial module shall be returned to the NRC using the box the new serial module came in and the Federal Express label provided in the kit.

15. PROCEDURES

- NWS site: Complete [ATTACHMENT 1](#) through [ATTACHMENT 7](#).
- DoD and FAA sites: Complete [ATTACHMENT 2](#) through [ATTACHMENT 7](#).
 - [ATTACHMENT 1](#) - (NWS ONLY) INSTALL AND LABEL W320 CABLE.
 - [ATTACHMENT 2](#) - SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION.
 - [ATTACHMENT 3](#) - CABLE LABELING PROCEDURE.
 - [ATTACHMENT 4](#) - CABLE REMOVAL PROCEDURE.
 - [ATTACHMENT 5](#) - CABLE INSTALL PROCEDURE.
 - [ATTACHMENT 6](#) - MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE.
 - [ATTACHMENT 7](#) - RPG DEDICATED WIRING CHECK FROM NEXRAD DEMARC.

16. FAA DISTRIBUTION

This directive is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: NXRAD.

17. CHANGES TO TABLE OF CONTENTS (FAA)

This chapter will be included in the next revision to the table of contents for FAA Order 6345.1, Electronic Equipment Modification Handbook - Next Generation Weather Radar (NEXRAD).

18. RECOMMENDATIONS FOR CHANGES (FAA)

Forward any recommendations for changes to this directive through normal channels to the National Airway Systems Engineering Division, AOS-200, Operational Support.

19. REPORTING INSTRUCTIONS

a. NWS

Report completed modification on WS Form A-26, Engineering Management Reporting System Maintenance Record, according to the instructions in NWS Instruction (NWSI) 30-2104, Engineering Management Reporting System (EMRS), part 2 and Appendix G. Include the following information on the WS Form A-26:

- An Equipment Code of RPG in Block 7.
- The appropriate serial number in Block 8.
- A Mod No. of 65 in Block 17a.

A sample EMRS report is provided as ATTACHMENT 11.

b. DoD

Update the AFTO Form 95 to show TCTO compliance. Report TCTO compliance in accordance with TO 00-20-2, Table 3-10, Rule 9.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

c. FAA

Enter this directive number, date, and chapter number on the appropriate FAA Form 6032-1, Airway Facilities Modification Record.

Use the Maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. Verify N is in the REP COD field to ensure the log entry will be upward reportable to the national data base for access by AOS. This directive should be entered into the LEM fields as follows:

(1) Order No.: 6345.1

(2) Chapter: 35

(3) Change: 38

d. DoD and FAA

Complete [ATTACHMENT 10](#), and return the information to the ROC by one of the four methods below:

- | | |
|---------------------|---|
| (1) Mail Address: | Program Branch, Retrofit Management Team
WSR-88D Radar Operations Center
3200 Marshall Ave., Suite 101
Norman, Oklahoma 73072-8028 |
| (2) Fax Number: | (405) 366-6553
ATTN: Retrofit Management Team |
| (3) E-mail Address: | NEXRAD.Logistics@noaa.gov |
| (4) Web Version: | http://www.roc.noaa.gov/ssb/logistics/completion.asp |

ATTACHMENT 1

(NWS ONLY) INSTALL AND LABEL W320 CABLE

Tools/Materials Required:

- Flashlight
- Utility knife
- Alcohol, isopropyl
- Sponge or paper towel
- Marker kit, supplied with Kit D
- Flat-tip screwdriver

Initial Conditions:

- All RPGPCA components installed
- Equipment powered on and RPG software is operational
- RPG is clear of RPG alarms

Purpose:

The purpose of this procedure is to verify termination of or install the W230 demarc cable between the RPG I/O Panel (UD70J3) and the NEXRAD RPG terminal block labeled 4-RJ2DX (e.g. also referred to as TB-4 or the 2nd RPG dedicated block).

If the W230 demarc cable is not installed, then the site will be instructed to reuse another on-site cable. The NEXRAD I/O panel to demarc block cables (for both legacy PUP and RPG) are pinned identically and use common connectors. The only difference is the cable labels and their respective termination points. If it cable exists, the first choice is to reuse the RPG 2nd dial demarc cable (e.g. TB-3 or 3-RJ2DX). The second choice is to reuse one of the legacy PUP demarc cables (W323 or W324).

1. Locate the I/O panel at the bottom left (rear view) of the RPG cabinet. Verify whether there is a 70/170W320 cable assembly connected at J3. The P1 end of cable W320 terminates at J3 and will be labeled as indicated below. Also verify the P2 end of cable is connected to the RPG's 2nd dedicated demarc block (labeled TB4 or 4-RJ2DX). If this cable is installed, proceed to step [10](#).

RPG W230 Cable (I/O Panel J3 to TB4 / 4-RJ2DX Block)		
Label at RPG End	Cable Assembly Label	Label at Punch Block
W230 P1 (70J3)	W230 OWY55ASSY2320040-303	W230 P2 (Leased Line 2)

ATTACHMENT 1 (Continued)

(NWS ONLY) INSTALL AND LABEL W320 CABLE

2. Site may have cable W229, which can be reused. The W229 cable was for a 2nd dial block in the legacy RPG configuration that is no longer used. Locate the NEXRAD RPG demarc block labeled TB-3 or 3-RJ21X. The P2 end of the W229 cable will have a 90° standard 50-pin telco trunk connector. The W229 cable terminates on the right hand side of the block, and it will be labeled as indicated below. If this cable does not exist, proceed to step 3. If it exists at the demarc, then also verify the P1 end is intact near the back of the RPG cabinet. The P1 end will be a 50-pin telco connector labeled as indicated below. The assembly label is usually located within six inches of the P1 end of the cable. Check near the RPG I/O panel at the left rear of the cabinet and at the bottom rear entry point. The cable may be coiled under raised floor panels, etc. Disconnect both ends of the W229 cable and remove the cable labels. Reroute the P2 end of the cable to the right side of the RPG punch block labeled as TB-4 (or 4-RJ2DX). Proceed to step 5. Using a utility knife, carefully remove the P1, P2 and Assembly labels from cable UD40W323 or UD40W324. Also, remove any additional labels attached to the cable.

Legacy RPG W229 Cable		
Label at RPG	Cable Assembly Label	Label at Punch Block
W229 P1 (22J4)	W229 1219656-304	W229 P2 (Dial Line 2)

3. Obtain the PUP/RPGOP cable W323 or W324 that was retained on site for this modification. If the cable is still installed on the PUP, disconnect the cable from the P1 end, and reroute the cable to the RPG I/O Panel. PUP cables will be labeled as indicated below. Disconnect the P2 end of the cable, and reroute the P2 end of the cable to the right side of the RPG punch block labeled as TB-4 (or 4-RJ2DX). Remove cable labels from both ends of the cable.

Legacy PUP Cable		
Label at PUP	Cable Assembly Label	Label at Punch Blocks
W323 P1 (41J16)	W323 1218823-301	W323 P2 (LEASED LINES)
W324 P1 (41J17)	W324 1218823-302	W324 P2 (DIAL LINES)

4. If the PUP cable is not on site or deemed unusable, contact the ROC Hotline at (800) 643-3363 to obtain a new cable. Route the new cable, and connect both ends per step 1. Proceed to step 10.
5. Refer to step 1 and make the old cable a W230 per steps 6 through 8.
6. Use isopropyl alcohol to clean the cable jacket and install the new P1 label from the marker kit on the RPG end. The P1 end of the cable has a DB50 connector.

ATTACHMENT 1 (Continued)

(NWS ONLY) INSTALL AND LABEL W320 CABLE

7. Install the cable assembly identifier label within 6 inches of the P1 label.
8. Use isopropyl alcohol to clean the cable jacket and install the P2 label on the end that will connect to the NEXRAD 66B punch block labeled TB-4 or 4-RJ2DX. The P2 end is a 90° 50-pin standard telephone trunk connector.
9. Connect both ends of the cable per step 1.
10. Some NWS sites have extended the NEXRAD RPG demarc. Extensions of the demarc are not a part of the WSR-88D component baseline. A block has been extended if there is a standard 50-pin telco trunk connector (usually 90°) connected on the left side of the block. If the RPG demarc is extended, the site is responsible for supplying and installing any required extension cables and mirrored 66B blocks corresponding to the RPG TB-4 (4-RJ2DX) punch block.

ATTACHMENT 2

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Tools/Materials Required:

2 cable assemblies, Serial RS232 DTE cables, NSN [NWS0-11-210-0027](#), supplied as part of Kits A or B, as applicable.
[Adapter, Null Modem](#) DB25F-DB25F (SERD 106) (Supplied in Kit D).
Flat-tip screwdriver
Serial Module, NSN [7025-01-457-3548](#), supplied in Kit D.
ESD Wrist Strap
Screwdriver Set, Phillips-tip
Federal Express Label

Initial Conditions:

- All RPGPCA components must be installed
- Equipment powered on
- Software Build 3.0 is installed
- RPG software and Human Control Interface (HCI) running
- User logged in to the RPG workstation
- RPG is clear of RPG alarms.
- FAA Redundant sites: Work on the inactive/non-controlling channel
- MSCF Network Connectivity Status Indicators are green
- NWS: Line 25 (AWIPS) TCP/IP user is connected.

Purpose:

The purpose is to remove and replace the existing CISCO serial card due to a latent manufacturing defect found after the RPG was deployed.

The steps in [Table 1](#) will temporarily remove the following network connections from the RPG backbone LAN:

NWS: router, local MSCF, and AWIPS

DoD: router, and distant MSCF

FAA: router, inter-channel link (between routers only), and distant MSCF

NWS: Ensure operations personnel are advised to execute AWIPS radar multiple requests to the RPG while this attachment is being performed, so NEXRAD products will continue to populate the local AWIPS database and continue to be sent across the AWIPS terrestrial WAN to the radar central server.

DoD/FAA: Contact the NWS office maintaining the Distant MSCF is inform them the Distant MSCF will be disabled while this modification is in progress.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 1 Remove/Replace Procedures

Step	Procedure
<p style="text-align: center;">CAUTION</p> <p>Failure to perform step 1 could cause serious damage to the Router.</p>	
1.	At the back of the Router, turn the power switch to OFF .
<p style="text-align: center;">WARNING</p> <p>Lethal voltages (from commercial power, CRTs, high-voltage power supplies, and low-voltage, high current power supplies) are present in much of the RPG Group equipment. Observe appropriate safety precautions at all times to ensure personnel safety.</p> <p style="text-align: center;">**ESD** CAUTION **ESD**</p> <p>All WSR-88D printed circuit cards are electrostatic sensitive devices, which require special handling.</p>	
2.	Put the ESD wrist strap on bare wrist and connect the clip lead to the rear of the router chassis frame for a proper ground.
<p style="text-align: center;">NOTE</p> <p>Steps 3 through 5 instruct that all communications cables be disconnected from the rear of the router. Note the AC power cord will not be disconnected, so as to maintain the connection to ground for ESD. The AC power cords are:</p> <ul style="list-style-type: none"> • NWS and DoD: UD70/170W52 • FAA: UD70/170W65 	
3.	<p>On the lower right Module 0 (UD70/170A2A1A0) on the back of the router disconnect the following cables:</p> <ul style="list-style-type: none"> • UD70/170W203 from the FAST ETH 0 port. • NWS: UD70/170W200 from the FAST ETH 1 port. • DoD and FAA: UD70/170W234 from the TI DSU/CSU port. • FAA: UD70/170W233 from the FAST ETH 1 port.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 1 Remove/Replace Procedures

Step	Procedure
4.	NWS: On the lower left Module 1 (UD70/170A2A1A1) on the back of the Router disconnect UD70/170W235 from the FAST ETH 0 port.
5.	DoD and FAA: On the defective Serial Module (UD70/170A2A1A2) at the back of the Router, disconnect UD70/170W265 from Serial Port 0.
6.	Loosen the 2 captive screws securing the Serial Module (UD70/170A2A1A2) to the router chassis. The serial module is located in the upper right hand corner.
7.	Pull the metal bar (connected to the base of the serial module) to remove the module from its slot.
NOTE	
The replacement module has no jumpers to set. Once the module is removed from its protective bag it is ready to install.	
8.	Align the replacement serial module (part number 2210022-203) with the guides in the router chassis slot and push the module into place until the edge connector is mated securely with the connector on the motherboard.
9.	Tighten the 2 captive screws to secure the module to the holes on the chassis.
10.	Reconnect the cables that were disconnected in steps 3 through 5.
11.	At the back of the router, turn the power switch to the ON position.
12.	NWS sites: Perform the following steps to ensure network connectivity is restored:
a.	Proceed to the RPGPCA processor and log-in. Start the MSCF (e.g. type mscf<CR> in the terminal window), if the MSCF window is not visible. Monitor the network connectivity status boxes in the lower left corner. The indicator for mscf and rtr should return to green within approximately 2 minutes.
b.	Proceed to the MSCF processor and log-in. Start the MSCF (e.g. type mscf<CR> in the terminal window), if the MSCF window is not visible. Monitor the network connectivity status boxes in the lower left corner. The indicator for rpg and rtr should return to green within approximately 2 minutes.
c.	Select the comms box on the RPG HCI to open the Product Distribution Comms Status (PDSC) window. Verify that line 25 (AWIPS) returns to a CONNECT status.
d.	Contact the operator to have them cancel the RMR.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 1 Remove/Replace Procedures

Step	Procedure
e.	If any of the network connections are not restored, check the connections at the back of the router. If the network connections are still not restored, perform the applicable fault isolation procedures in EHB 6-525.
13.	DoD: Perform the following steps to ensure network connectivity is restored:
a.	Perform step 12a . Also, ensure BDDS network connectivity indicator returns to green.
b.	If any of the network connections are not restored, check the connections at the back of the router. If the network connections are still not restored, perform the applicable fault isolation procedures in EHB 6-525.
14.	FAA Redundant sites: Temporarily make the channel with the new module to be the active channel. Performing the following steps to ensure network connectivity is restored:
a.	Perform steps 12a and select the appropriate channel button in the MSCF window. Ensure all network connectivity indicators return to green within approximately 2 minutes.
b.	If any network connects are not restored, check the connections at the back of the router. If the network connections are still not restored, perform the applicable fault isolation procedures in EHB 6-525.
c.	Change this RDA/RPG back to the non-controlling channel after all network connections are restored.
15.	Perform the loopback test in ATTACHMENT 2, Table 3 , on the new serial module, after the applicable rtr (or rtr2 FAA only) box returns to green. Read the information proceeding to step 2 for guidance on performing the loopback test.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Initial Conditions:

- All RPGPCA components must be installed
- Equipment is powered on
- RPG Build 3.0 software and Router configurations
- Human Control Interface (HCI) running
- User logged in to the RPG workstation
- RPG is clear of RPG alarms.
- FAA Redundant sites: Work on the inactive/non-controlling channel

Purpose:

The purpose is also to test Cisco Router Serial module by running loopback tests between dedicated ports on the module and also between dial ports on the module. The procedures in [Table 3](#) must be run from an RPG workstation. This procedure will show if the Serial module is properly seated and all ports are working. If the serial module is determined to have one or more bad ports, perform the procedures provided in [Table 1](#). The graphic below is a rear view of the RPG Router Serial Module (A2A1A2). This module is located in the upper right rear slot (2) of the router. The Cisco convention is to designate each port by the router slot location combined with the port number (e.g., 2/0, 2/1). These designator conventions are show below:

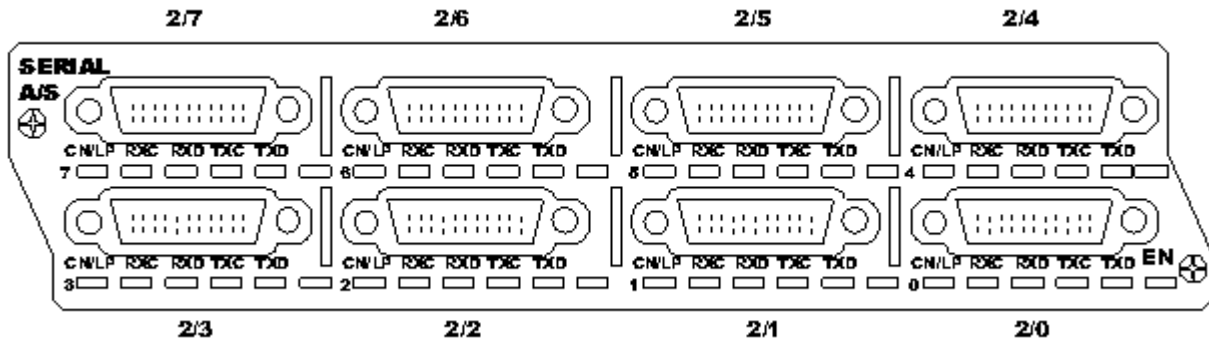


Table 2 Suggested Order for Router Serial Port Loopback Tests

Verify On RPGs	From Dial Port	To Dial Port
DoD, FAA, NWS	2/7	2/6
DoD, FAA, NWS	2/7	2/5
Verify On RPGs	From Dedicated Port	To Dedicated Port
DoD, FAA, NWS	2/4	2/3
DoD, FAA, NWS	2/4	2/2
DoD, FAA, NWS	2/4	2/1
Only NWS	2/4	2/0

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
1.	Connect the null modem adapter (DB25F to DB25F) to the DB25M ends of the two Cisco RS232 DTE cables. This will be the loopback test cable.		
2.	At the RPGPCA (non-controlling channel for FAA redundant), log on the workstation and open a terminal window.		
3.	FAA Redundant sites: Proceed to step 9		
(STEPS 4-8) DISCONNECTS LINES 32 - 40			
4.	Use the existing instance of the RPG HCI or start the RPG HCI by entering: hci &<CR> in a terminal window. Move the mouse to the RPG HCI window and click once anywhere within the window to make it the active window.	The window now has a pink border highlighting it as the active window.	
5.	Click on the Comms button (blue) to display the Product Distribution Communications Status (PDCS) window.	After several seconds, the PDCS window appears.	
6.	Click on the Next button to display status of lines 25 through 40.	The second page of the PDCS line appears.	

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
7.	Using the mouse, highlight line 32. Press and hold the <Shift> key on the keyboard, and then click on line 40.	Lines 32 through 40 are highlighted in black.	
8.	Click on the Disconnect button to disconnect lines 32 through 40.	The status of each line will change to a status of DISCON.	This sends the SNMP control command to the router to shutdown the serial interfaces 2/0 (NWS only) and 2/1 through 2/7 (DoD/FAA and NWS configurations).
STEPS 9 - 14 STARTS TWO DIFFERENT TELNET SESSIONS WITH ROUTER			
<p style="text-align: center;">NOTE</p> <p>The following steps require two telnet sessions to be opened at the same time. Any inactivity in either session for approximately 10 minutes will cause the telnet session to time out. If a time-out occurs, repeat steps 9 through 12 to reactivate the session. If a time-out occurs in the first window, also repeat step 15. To avoid a time-out, periodically press the <CR> key in the telnet session.</p>			
9.	Open two different terminal windows on the RPG workstation, and place both windows side-by-side in front of all other open windows on the desktop.		
10.	Perform steps 11 through 14 in each terminal window.	Two router telnet sessions will be opened and used during the loopback procedure.	One telnet session will display router debut information. The second telnet session will be used to turn the serial ports on and off.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
11.	<p>If this is a single channel RPG or FAA redundant channel 1, at the prompt, enter: telnet rtr<CR> or telnet rtr1<CR></p> <p>If this is a FAA redundant channel 2, at the prompt, enter: telnet rtr2<CR></p>	<p>The response for NWS and DoD will be, where XXX corresponds to the specific RPG IP subnet:</p> <p>Trying 172.25.XXX.7... Connected to rtr. Escape character is '^]'. WARNING! US Gov system! PL 99-474 prohibits unauthorized access. Violators may be fined or imprisoned. Persons using this system are subject to and consent to having all activities monitored/recorded.</p> <p>User Access Verification</p> <p>Password:</p> <p>FAA Channel 2: the IP address will be 172.25.XXX.71</p>	<p>This command opens a telnet session with the router. The final router prompt will be Password:</p>
12.	<p>Type in the site selected user level password (default is cisco): cisco<CR></p>	<p>rtr> or rtr2> prompt is displayed.</p>	<p>User mode or user level in the router is indicated by the > prompt.</p>
13.	<p>At the rtr> or rtr2> prompt, enter: enable<CR></p>	<p>the router prompt will be Password:</p>	<p>Command to enter privilege mode.</p>

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
14.	Type in the site selected privileged password (default is cisco): <i>cisco</i> <CR>	rtr# or rtr2# prompt is displayed.	Privilege mode is indicated by a # prompt.
15.	In the first telnet session, enter: term mon <CR>	rtr# or rtr2# prompt is displayed.	Turns on the Terminal Monitor Mode.
<p style="text-align: center;">NOTE</p> <p>Router state changes (such as those shown in the example below) will be printed to the screen of the first telnet session window during the remainder of the procedures. New command can still be entered. Enter <CR> to return to the # prompt and type in the new command followed by <CR>. The command might be spaced between lines as the state changes scroll by.</p> <p>Example router state changes:</p> <pre>01:37:24: %LINK-3-UPDOWN: Interface Serial2/5, changed state to up 01:39:26: %LINK-5-CHANGED: Interface Serial2/5, changed state to reset</pre>			
16.	In the first telnet session window, enter: debug ppp neg <CR>	PPP protocol negotiation debugging is on	Turns on ppp negotiation debugging. PPP debug output will begin to display in approximately 20 seconds.
17.	In the second telnet session, enter: config t <CR>	Enter configuration commands, one per line. End with <Ctrl>Z. Prompt will change to: rtr(config)# or rtr2(config)# for FAA Channel 2	Opens the router global configuration mode.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
18.	Connect the DB60M ends on two of the dial ports (2/5, 2/6, or 2/7 are dial ports) (see Table 2 for a suggested order). If the cables do not stay securely attached to the router, screw the cable thumbscrews several turns.		
(Steps 19 - 22) Configures Two Different Serial Ports for “No Shutdown”			
19.	In the second telnet session, enter: int s2/X<CR> X should be replaced with the actual number corresponding to one of the ports under test.	Prompt will change to: rtr(config-if)# or rtr2(config-if)# for FAA Channel 2.	Opens the serial interface configuration mode.
20.	In the second telnet session, enter: no shutdown<CR>	In the first telnet session where the terminal monitor command is active, the response will be: 00:38:37: %LINK-3-UPDOWN: Interface Serial2/ X, changed state to down 00:38:37: Se2/X LCP: State is Closed	

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
21.	In the second telnet session, enter: int s2/Y<CR> Y should be replaced with the actual number corresponding to the other of the two ports under test.	Prompt will change to: rtr(config-if)# or rtr2 (config-if)# for FAA channel 2.	Opens the serial interface configuration mode.
22.	In the second telnet session, enter: no shutdown<CR>	In the first telnet session where the terminal monitor command is active, the response will be: 00:38:37: %LINK-3-UPDOWN: Interface Serial2/ Y, changed state to down 00:38:37:Se2/ Y LCP: State is Closed	

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
23.	Observe the debug output in the first telnet session. An extract of the correct sequence is provided at right. Scroll through the debug output in the telnet window, as necessary, to ensure that the "CHAP" phase of negotiation is achieved. There will be at least one "CHAP: O CHALLENGE" and one "CHAP: I CHALLENGE" packet for each port under test. The CHAP sequence may not be in exact consecutive order.	<p>Example PPP Negotiation Debug Output for Two Good Dial Serial Ports:</p> <pre> TIME PORT NEGOTIATION PHASE 00:40:01: Se2/6 CHAP: O CHALLENGE id 1 len 25 from "rtr" 00:40:01: Se2/6 CHAP: I CHALLENGE id 1 len 25 from "rtr" 00:40:01: Se2/6 CHAP: Waiting for peer to authenticate first 00:40:01: Se2/7 CHAP: I CHALLENGE id 1 len 25 from "rtr" 00:40:01: Se2/7 CHAP: Waiting for peer to authenticate first 00:41:01: Se2/7 CHAP: O CHALLENGE id 2 len 25 from "rtr" </pre> <p style="text-align: center;">NOTE</p> <p>An I and O CHALLENGE packet in the CHAP state must be observed from both serial ports for the loopback to be considered successful. It may be necessary to wait about 2 minutes to see the CHAP protocol negotiation output sequence. During loopback, the negotiation will eventually time out and repeat the negotiation process from the beginning after the ports are reset.</p> <p>FAA Only: "rtr" will instead be "rtr1" for the channel 1 router or "rtr2" for the channel 2 router.</p>	
<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Reminder that any inactivity for approximately 10 minutes will cause the telnet session to time-out. See note before step 9.</p>			
24.	If the debug observed is correct, then proceed to step 26. If no debug is observed within a 30 second interval or there are only I or only O packets observed in the CHAP state for each interface, check the connections of each cable end. Observe the debug output again.		

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
25.	If the debug output is now as shown in the good example above, proceed to step 26. If the debug output is not like the good example or there is no debug after 30 seconds, the serial module of the router is probably defective. Obtain a replacement Serial Module. Remove and replace defective module per ATTACHMENT 2, Table 1. Repeat this verification procedure starting from the initial conditions.		
26.	If this is the first two dial ports being tested, move one of the two DB60M to the untested dial port and repeat from step 21. If the loopback test on all three dial ports are completed, then proceed to step 27.		
27.	Connect the DB60M ends on two of the dedicated ports. (2/0 through 2/4 are dedicated ports). DoD/FAA: (2/1 through 2/4 are dedicated ports).		
28.	Repeat steps 19 through 22 for the two dedicated ports under test and then proceed to step 29.		Activates the two ports using the no shutdown configuration comments.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
29.	Observe the debug output in the first telnet session. An extract of the correct sequence is provided at right. Scroll through the debug output in the telnet window, as necessary, to ensure the IPCP phase of negotiation is achieved. There will be at least one debug line like IPCP: Install route... for both serial ports.	<p>Example PPP Negotiation Debug Output for Two Good Dedicated Serial Ports:</p> <p>TIME PORT NEGOTIATION PHASE 01:11:55: Se2/4 IPCP: Install route to 172.25.XXX.7 01:11:55: Se2/2 IPCP: Install route to 172.25.XXX.7</p> <p>FAA RPG CHANNEL 2: TIME PORT NEGOTIATION PHASE 01:11:55: Se2/4 IPCP: Install route to 172.25.XXX.77 01:11:55: Se2/2 IPCP: Install route to 172.25.XXX.77</p> <p>The output must include installed routes to 172.25.XXX.7 (172.25.77 for FAA CH 2) through both serial ports under test. It may be necessary to wait about 2 minutes to see this output. During loopback, the negotiation will eventually time out and repeat the negotiation process from the beginning after the ports are reset. The XXX will be the actual IP subnet for the specific RPG under test.</p>	
30.	If the debug observed is correct, then proceed to step 32. If no debug is observed within a 30 second interval or there are only I or only O packets observed on one or both of the interfaces, check the connections of each cable end. Observe the debug output again.		

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
31.	If the debug output is now as shown in the good example above, proceed to step 32. If the debug output is still or now as shown in the bad example or there is no debug after 30 seconds, the serial module of the router is probably defective. Obtain a replacement Serial Module. Remove and replace the defective module per ATTACHMENT 2, Table 1. Repeat this verification procedure starting from the initial condition.		
32.	If all the dedicated ports have not been tested, move one of the two DB60M cable ends to an untested dedicated port and repeat from step 28. If all dedicated ports have been checked, then proceed to the next step.		
33.	In the first telnet session window, enter: no debug all<CR>	All possible debugging has been turned off.	Turns off the debugging routine.
34.	In the first telnet session window, enter: term no mon<CR>		Turns off the terminal monitor mode.
35.	In the second telnet session window, enter: end<CR>	The rtr# or rtr2# prompt will appear.	

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
36.	In both telnet windows, enter: exit<CR> to exit out of both telnet sessions.	Connection closed by foreign host. is displayed in both terminal windows.	
37.	In both telnet windows, enter: <CR>	A prompt will appear.	
38.	Remove the Cisco DTE cables and the null modem adapter from the router.		
39.	Remove the null modem adapter from the Cosco DTE cables and add the null modem adapter to the site tech kit.		
40.	FAA Redundant sites: Proceed to step 44. All other site proceed to the next step.		
41.	Move the mouse to the RPG HCI PDCS window to make it the active window.		
42.	Use the mouse to highlight line 32. This line is now highlighted in black. Press the <Shift> key on the keyboard. Then, while still pressing the <Shift> key click on line 40.		
43.	Click on the Connect button to connect lines 32 through 40.	The status of each line will change to CONNECT or CON PENDING depending upon if a distant user is connected to the system.	This step returns all router serial module ports to the no shutdown state.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	Procedure	Response	Comment
44.	FAA Redundant site: If this procedure has not been performed on the other channel, repeat ATTACHMENT 2 in its entirety; otherwise, proceed to ATTACHMENT 3 .		
45.	Using the box the old serial module came in, and the Federal Express label provided in the kit, ship the old serial module to the NRC. Be sure to complete the from section on the return form.		

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 3

CABLE LABELING PROCEDURE

Materials Required:

Kits A and B, as applicable
Cable Marker Kit from Kit D.

NWS Only:

Label each of the 6 Kit B cables using the cable markers provided in Kit D and as directed in [ATTACHMENT 3, Table 1](#). The ASSEMBLY label should be applied within 6 inches of the P1 end of the cable.

Table 1 NWS Labels Needed for Kit B Cables

COLUMN I “TO”	COLUMN II ASSEMBLY	COLUMN III FROM
70/170W265 P1 (A2A1A2 0)	70/170W265 0WY55ASSY2320052-301	70/170W265 P2 (A14 DTE A21)
70/170W291 P1 (A2A1A2 1)	70/170W291 0WY55ASSY2320052-301	70/170W291 P2 (A14 DTE A17)
70/170W292 P1 (A2A1A2 2)	70/170W292 0WY55ASSY2320052-301	70/170W292 P2 (A14 DTE A18)
70/170W293 P1 (A2A1A2 3)	70/170W293 0WY55ASSY2320052-301	70/170W293 P2 (A14 DTE A19)
70/170W294 P1 (A2A1A2 4)	70/170W294 0WY55ASSY2320052-301	70/170W294 P2 (A14 DTE A20)
70/170W297 P1 (A2A1A2 7)	70/170W297 0WY55ASSY2320052-301	70/170W297 P2 (A14 DTE 4B)

ATTACHMENT 3 (Continued)

CABLE LABELING PROCEDURE

DoD/FAA Redundant Only:

Label each of the 5 cables provided in Kit A using the cable markers provided in Kit D and as directed in [ATTACHMENT 3, Table 2](#). The ASSEMBLY label should be applied within 6 inches of the P1 end of the cable. For FAA redundant sites, label the cables in both A kits. One kit is for the channel 1 RPG and the other is for the channel 2 RPG. The markers are identical for either of the redundant RPGs.

Table 2 DoD/FAA Labels Needed for Kit A Cables

COLUMN I TO	COLUMN II ASSEMBLY	COLUMN III FROM
70/170W291 P1 (A2A1A2 1)	70/170W291 0WY55ASSY2320052-301	70/170W291 P2 (A14 DTE A17)
70/170W292 P1 (A2A1A2 2)	70/170W292 0WY55ASSY2320052-301	70/170W292 P2 (A14 DTE A18)
70/170W293 P1 (A2A1A2 3)	70/170W293 0WY55ASSY2320052-301	70/170W293 P2 (A14 DTE A19)
70/170W294 P1 (A2A1A2 4)	70/170W294 0WY55ASSY2320052-301	70/170W294 P2 (A14 DTE A20)
70/170W297 P1 (A2A1A2 7)	70/170W297 0WY55ASSY2320052-301	70/170W297 P1 (A14 DTE 4B)

ATTACHMENT 4

CABLE REMOVAL PROCEDURE

Tools/Materials Required

Flashlight
Pliers set
4-inch and 6-inch diagonal cutters
Pliers, miniature cutters
Screwdriver set, flat-tip, 1/4-inch x 4-inch, 1/4-inch x 6-inch, and/or 5/16-inch x 8-inch
Screwdriver set, Philip-tip, #2 x 4-inch and/or #2 x 8-inch
Nut driver set, hex 3/16-inch
Tiedown straps
Fastener, tiedown
Nut, screw, washer

Initial Conditions:

- All RPGPCA components must be installed
- Equipment is powered on
- RPG software is running

Remove Serial Cables from Modem Nest (A14) and PTI X.25 Controllers (A15 and A17)

PURPOSE

The purpose of this section is to remove dedicated cables 70/170W287 through 70/170W290 from the Codex Modem Nest (A14) and the corresponding PTI Controller (A17). Also, dial cable 70/170W273 will be removed from the Codex Modem Nest (A14) and the corresponding PTI Controller (A15). Use a long flat-tip screwdriver to remove each cable in this procedure.

NOTE

The FAA is in the process of disconnecting all their dial lines that were associated with modem 4B. No action is required at this time with respect to the FAA dial line. A subsequent modification note will address removing this line from the dial punch block.

1. Facing the rear of the RPG PCA, open the cabinet doors and locate the rear of the Codex Modem Nest (A14).

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 4 (Continued)

CABLE REMOVAL PROCEDURE

2. Remove the P2 ends of the following cables:

Cable Terminates At	Cable Labels on P2 end	Terminating Location
Modem nest - slot 20	70/170W290 A14 DTE A20	2nd from the left
Modem nest - slot 19	70/170W289 A14 DTE A19	3rd from the left
Modem nest - slot 18	70/170W288 A14 DTE A18	4th from the left
Modem nest - slot 17	70/170W287 A14 DTE A17	5th from the left
Modem nest - slot 4B	70/170W273 A14 DTE 4B	4th from right

NOTE

Four cables will now be removed from the A17 (bottom) unit and one cable will be removed from the (A15) top unit. A15 and A17 are two of the three PTI controllers.

3. Facing the rear of the RPG PCA, open the cabinet doors and locate the three PTI X.25 Serial Controllers (A15 through A17) below the modem nest.
4. Remove the P1 ends of the following cables:

Cable Terminates At	Cable Labels on P1 end	Port Terminating Location (facing rear)
PTI Controller (A15)	70/170W273 A15 Port 7	Top unit, top right, port 7
PTI Controller (A17)	70/170W290 A17 Port 7	Bottom unit, top right, port 7
PTI Controller (A17)	70/170W289 A17 Port 6	Bottom unit, top row 2nd from right, port 6
PTI Controller (A17)	70/170W288 A17 Port 5	Bottom unit, top row 2nd from left, port 5
PTI Controller (A17)	70/170W287 A17 Port 4	Bottom unit, top row, left, port 4

ATTACHMENT 4 (Continued)

CABLE REMOVAL PROCEDURE

NOTE

The five cables will now be removed from the cables bundles.

CAUTION

The three cable bundles supported in the titanium cable bundle clamp is heavy and cumbersome. It is highly recommended that the clamp not be loosened without temporarily securing the three cable bundles, as it is difficult to hold the bundles at the same time they are being secured within the clamp.

5. Note the arrangement of each cable bundle. Locate the bundle that terminates at the A17 PTI Controller (bottom unit of 3). The bundles are secured according to the unit on which the P1 ends terminate. The A17 bundle consists of cables 70/170W283 through 70/170W290.
6. Note the arrangement of each cable bundle. Locate the bundle that terminates on the A15 PTI Controller (top unit of 3). The bundles are secured according to the unit on which the P1 ends terminate. The A15 bundle consists of cables 70/170W266 through 70/170W273.
7. Remove the cables disconnected in steps 4 through 6.
8. Tiewrap the remaining A15 cables into their original bundle for a clean installation. The new A15 bundle should consist of the following cables:
 - 70/170W266
 - 70/170W267
 - 70/170W268
 - 70/170W269
 - 70/170W270
 - 70/170W271
 - 70/170W272
9. Tiewrap the remaining A17 cables into their original bundle for a clean installation. The new A17 bundle should consist of the following cables:
 - 70/170W283
 - 70/170W284
 - 70/170W285
 - 70/170W286
10. Inspect the P2 (male) ends of the removed cables for jackscrews that may have come off of the modem chassis ports.
11. If there are any cables with jackscrews, remove the jackscrews and install on the respective modem port in the modem chassis using the 3/16 inch nut driver.

ATTACHMENT 4 (Continued)

CABLE REMOVAL PROCEDURE

12. Dispose of the five removed cables according to local procedures. These cables will not be returned for restocking.
13. **FAA Redundant sites:** If both channels are completed proceed to [ATTACHMENT 5](#). If not Repeat [ATTACHMENT 4](#) in its entirety for the second channel.

ATTACHMENT 5

CABLE INSTALL PROCEDURE

Tools/Materials Required:

Cables labeled in Attachment 3.
Kit D
Washer, Lock-spring, Helical
Washer, Flat
Screw, Machine Pan-Head
Plate, Mounting, Cable Tie
Strap, Tiedown, Electrical
Flashlight
Pliers set
4-inch and 6-inch diagonal cutters
Pliers, miniature cutters
Screwdriver set, flat-tip ¼-inch x 4-inch, ¼-inch x 6-inch, and/or 5/16-inch x 8-inch
Screwdriver set, Philip-tip #2 x 4-inch and/or #2 x 8-inch
Nut driver set, hex 3/16-inch

Initial Conditions:

- All RPGPCA components must be installed
- RPG Software Build 3.0 and Build 3.0 router configurations
- Equipment is powered on
- RPG software and HCI is running
- User is logged on to the RPG workstation
- Successfully completed [ATTACHMENT 1](#) through [ATTACHMENT 4](#).

Install Serial Cables from Modem Nest (A14) to Router Serial Card (A2A0A2)

NOTE

The purpose of this section is to install dedicated cables 70/170W291 through 70/170W294 from the Codex Modem Nest (A14) to the corresponding port on the Router Serial Module (A2A0A2). For NWS only configurations, dedicated cable 70/170W265 will also be installed from the Codex Modem Nest (A14) to the corresponding port on the Router Serial Module (A2A0A2). For all configurations, a dial cable 70/170W297 will be installed from the Codex Modem Nest (A14) to the corresponding port on the Router Serial Module (A2A0A2). Use a long flat tip screwdriver to install each of the cables identified in this procedure.

1. Facing the rear of the RPGPCA, open the cabinet doors and locate the rear of the Codex Modem Nest (A14).

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 5 (Continued)

CABLE INSTALL PROCEDURE

2. Connect the P2 (DB25) male ends of the following new serial cables, which were labeled per [ATTACHMENT 3](#). Temporarily drape the cables out of the rear of the cabinet of the A25 panel.

P2 End of Cable Terminates At	Cable Labels on P2 end	Terminating Location
Modem nest - slot 4B	70/170W297 A14 DTE 4B	4th from right
Modem nest - slot 17	70/170W291 A14 DTE 17	5th from left
Modem nest - slot 18	70/170W292 A14 DTE 18	4th from left
Modem nest - slot 19	70/170W293 A14 DTE 19	3rd from left
Modem nest - slot 20	70/170W294 A14 DTE 20	2nd from left
NWS: Modem nest - slot 21	70/170W265 A14 DTE 21	furthest left
FAA/DoD: Cable W265 is already installed for the distant MSCF.		

3. Mount one plastic cable tie mounting plate to the right center rail of the communications cabinet (right side of the left cabinet from a rear view) using #10 screws with a flat and lock washer. The placement of the fastener should be directly below the modem nest bracket.
4. Loosely route the new cables (along with existing W265 for DoD and FAA redundant systems) through the inter-cabinet access port. Drape the cable bundle out of the right rear cabinet for dressing.
5. Using the top two tie mounts in the right rear cabinet and the new tie mounting plate in the right rear cabinet, secure the cable bundle for a clean installation. In addition, attach tiedown straps (e.g. tiewraps) to the bundle approximately every 6 inches.

ATTACHMENT 5 (Continued)

CABLE INSTALL PROCEDURE

6. Connect the P1 (DB60) male ends of the following new cables, which were labeled per [ATTACHMENT 3](#), to the serial module installed in the upper right rear corner (slot 2) of the RPG router:

P2 End of Cable Terminates At	Cable Labels on P2 end	Terminating Location
Serial Module Slot 2 - Port 7	70/170W297 A2A1A1 7	Top left
Serial Module Slot 2 - Port 1	70/170W291 A2A1A1 1	Bottom row, 2nd from right
Serial Module Slot 2 - Port 2	70/170W292 A2A1A1 2	Bottom row, 2nd from left
Serial Module Slot 2 - Port 3	70/170W293 A2A1A1 3	Bottom left
Serial Module Slot 2 - Port 4	70/170W294 A2A1A1 4	Top right
NWS: Serial Module Slot 2 - Port 0	70/170W265 A2A1A1 0	Bottom right
FAA/DoD: Cable W265 is already installed for the distant MSCF.		

7. Note the existing cable bundles that are secured to the left rear rail of the processor cabinet.

CAUTION

In the next steps, the new cable bundle will be secured to the cabinet rail with cable tie fasteners. Do not secure the existing cables that are intended to move with the sliding shelves. These cables are purposely fastened with sufficient slack to allow proper operation of the sliding shelves with equipment to be moved in and out as needed.

8. **FAA Redundant sites:** Repeat [ATTACHMENT 5](#) in its entirety for the other channel.

ATTACHMENT 6

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Tools/Materials Required:

Modem "C" kit, if supplied
ESD component handling kit
Current WSR-88D Communications Documentation Notebook

Initial Conditions:

Successfully completed [ATTACHMENT 1](#) through [ATTACHMENT 5](#).

Purpose:

This procedure installs new RPG dedicated modems if supplied as part of the modification kit. The procedure also instructs most sites to permanently relocate one or more dedicated modems. All sites will be instructed to setup the dial modem in slot 4B and dedicated modems in slots 17 through 20 (for FAA/DoD) and 17 through 21 (for NWS). The procedure supports the DoD OPUP Spiral II and III deployments.

1. Obtain a current copy of your WSR-88D Telecommunications Notebook as disseminated from the WSR-88D Hotline. The Telecommunications Circuit Report (TCR) section of this document will be used as a reference to the users, telecommunications circuits, and active assigned modems on this RPG.
2. Read the instruction specific to this RPG in [ATTACHMENT 6, Table 1:](#). This table gives information tailored for this RPG to relocate the unassigned modem(s) and install the new modem(s), as applicable.
3. Open the RPGPCA cabinet doors to locate the Dedicated/Dial Modem Rack Assembly UD70A14.
4. Insert key into the lock on the modem rack door and turn key counterclockwise to unlock. Fully swing out the modem rack door.
5. As necessary, compare the actual active RPG modems to the assigned and unassigned modems shown on the Telecommunications Circuit Report (TCR) obtained in step 1. Unassigned modems are denoted by "none designated" on the TCR. In the actual RPG modem nest, observe the status of front panel LEDs on modems denoted as "none designated" on the TCR. Unassigned modems should not have activity on the TD, RD, or CD lights. However, the CD LED may be lit even if there is not a user connected to this modem, if the Terminal Options CD setting is incorrectly set to "High".

****ESD** CAUTION **ESD****

All WSR-88D printed circuit cards are electrostatic sensitive devices which require special handling.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

6. If it appears that [ATTACHMENT 6, Table 1:](#) will instruct the relocation of an active modem or installation of a new modem in a slot already in use, then there is a discrepancy between the actual active RPG modems and the Telecommunications Circuit Report (TCR). Contact the WSR-88D Hotline at 1-800-643-3363 to resolve the discrepancy before proceeding.
7. Put ESD wrist strap on bare wrist and connect clip lead to the chassis frame for proper ground.

NOTE

Modem cards can be removed and installed while power is ON and software is running.

8. Perform steps [9](#) through [14.b](#) for each relocated modem to be removed and placed into a new slot as directed for this RPG by [ATTACHMENT 6, Table 1:](#). Perform steps [10.](#) through [14.b](#) for each new modem to be installed as directed for this RPG by [ATTACHMENT 6, Table 1:](#).
9. Remove the modem card from its present slot in the Codex enclosure by rotating the card ejectors simultaneously at the top and bottom of the modem card. Carefully slide the card out of its slot as shown in [ATTACHMENT 6, Figure 1.](#)

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

10. See [Figure 2](#) Check/set the DIP switches at the replacement modem as follows:

- 3263: 1 and 2 are ON, all others are OFF.

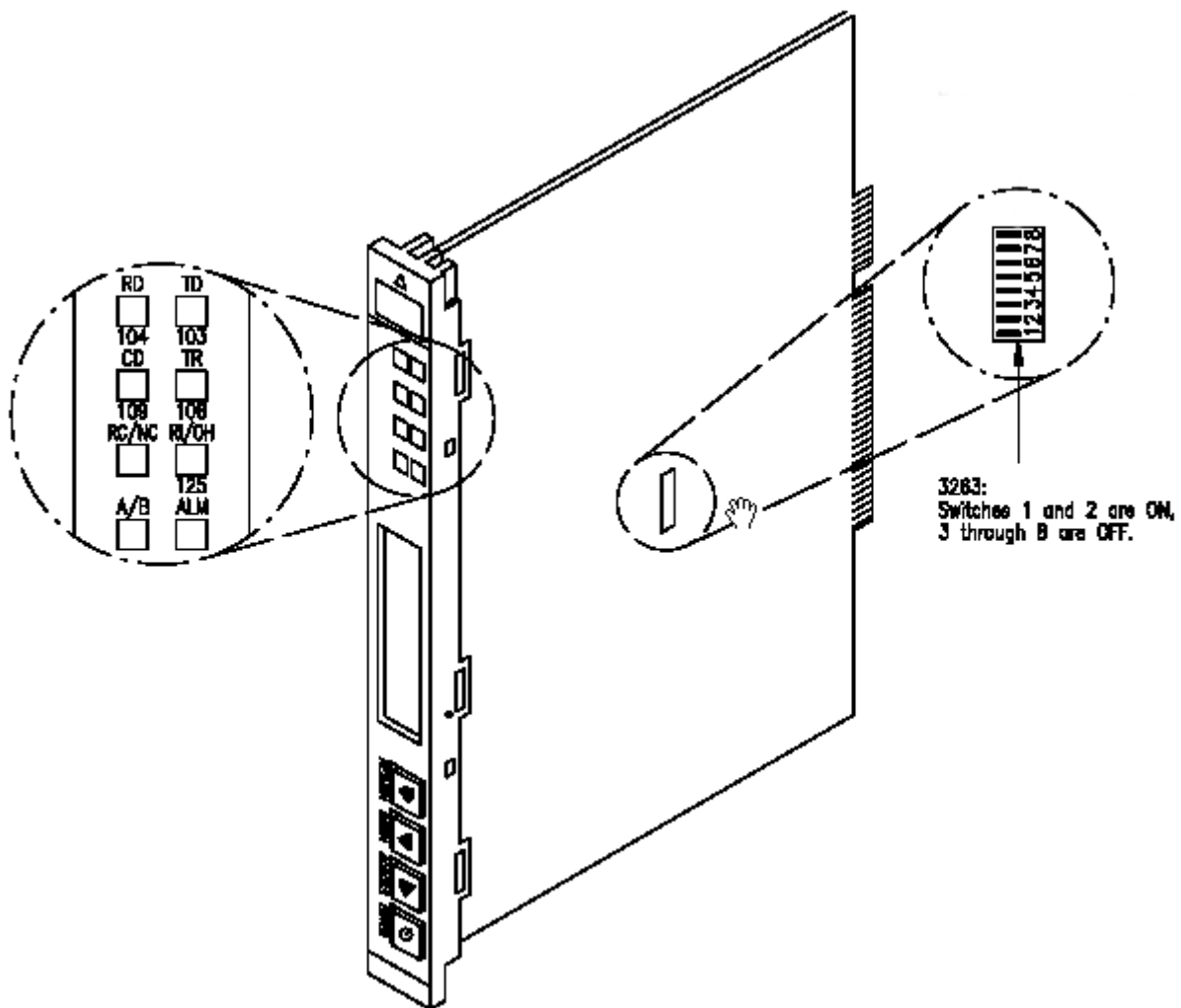


Figure 2. Dedicated Port (Rack-Mounted) Modem, Front Panel and DIP Switch Location

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

11. Install the new or relocated modem card into the intended slot in the enclosure while ejectors are in position A as shown in [ATTACHMENT 6, Figure 1](#). When the card makes contact with the ejectors, rotate the ejectors inward toward the card and press firmly to properly seat the card.
12. Remove the ESD wrist strap and remove the clip lead from chassis frame.
13. The following icons summarize the modem menu selection functions:



Return key – when pressed within a branch of the menu, changes the LCD to the branch title screen (eg. TERMINAL OPT'S). When pressed at a branch title screen, changes the LCD to the home screen (eg. DATA 14.4T/D?).



Down key – moves from branch to branch from the main menu and selects individual setting options within the branches.



Across key – moves the screen along the branches of the modem menu tree. It also moves the cursor across data entry menus one character (or digit) at a time (eg. S-Reg menus).



Enter key – selects the item displayed on the LCD as the current setting (if the screen displayed an = sign, it was already the current setting), or initiates an action (as in Reinit Memory?).


NOTE


Due to differences in modem models, some default display readings will vary between sites. Operators should carefully note desired modem settings and follow data input sequences until these settings are accomplished. (Example 1: While some systems default to a DTE Rate of 14.4, others default to 33.6. In the event the system defaults to 33.6, and the desired reading is 14.4, follow the key sequence until the display reading is 14.4. Example 2: While following procedures for the S-Reg reading, the system may begin with S-Reg = 030 or it may default to some other reading. If the desired reading is S-Reg = 180, perform the key sequence until this reading is achieved.)


ATTACHMENT 6 (Continued)


MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE


14. Perform the following steps to setup any dedicated modems located in slots 17 through 20 (21 for NWS):


a. Press the  <RETURN> key twice (ensures beginning from the home screen).


b. Press the  <ACROSS> key until the display reads Reinit Memory?


c. Press the  <ENTER> key once, the display reads Reinit All Mem?


d. Press the  <ENTER> key again, the display reads 3263 Initial


e. Press the  <RETURN> key, the display reads Disconnect T/D?

f. Press the  <ACROSS> key until the display reads Power Up In=Old


g. Press the  <DOWN> key until the display reads Power Up In:1

h. Press the  <ENTER> key, the display reads Power Up In=1

i. Press the  <RETURN> key until the display reads Disconnect T/D?













j. Press the  <DOWN> key until the display reads MODULATION OPT' S

k. Press the  <ACROSS> key, the display reads Line=Dial

l. Press the  <DOWN> key until the display reads Line:4W Lease













ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- m. Press the  **<ENTER>** key until the display reads `Line=4W Lease`
- n. Press the  **<ACROSS>** key, the display reads `Min Rate=300`
- o. Press the  **<DOWN>** key until the display reads `Min Rate:4800`
- p. Press the  **<ENTER>** key until the display reads `Min Rate=4800`
- q. Press the  **<ACROSS>** key until the display reads `Mode=Originate`
- r. Press the  **<DOWN>** key until the display reads `Mode:Answer`
- s. Press the  **<ENTER>** key until the display reads `Mode=Answer`
- t. Press the  **<ACROSS>** key until the display reads `PSTN=On`
- u. Press the  **<DOWN>** key until the display reads `PSTN:OFF`
- v. Press the  **<ENTER>** key, the display reads `PSTN=OFF`
- w. Press the  **<RETURN>** key, the display reads `MODULATION OPT'S`
- x. Press the  **<DOWN>** key until the display reads `EC/DC OPT's`













ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- y. Press the  **<ACROSS>** key until the display reads `Modem Flow=On`
- z. Press the  **<DOWN>** key until the display reads `Modem Flow:Off`
- aa. Press the  **<ENTER>** key, the display reads `Modem Flow=Off`
- ab. Press the  **<RETURN>** key, the display reads `EC/DC OPT'S`
- ac. Press the  **<DOWN>** key until the display reads `ACU OPT'S`
- ad. Press the  **<ACROSS>** key, the display reads `ACU Select=AT`
- ae. Press the  **<DOWN>** key, the display reads `ACU Select:None`
- af. Press the  **<ENTER>** key, the display reads `ACU Select=None`
- ag. Press the  **<RETURN>** key, the display reads `ACU OPT'S`
- ah. Press the  **<DOWN>** key, the display reads `TERMINAL OPT'S`
- ai. Press the  **<ACROSS>** key until the display reads `DTE Rate=Auto`
- aj. Press the  **<DOWN>** key until the display reads `DTE Rate:38.4`


ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- ak. Press the  **<ENTER>** key, the display reads `DTE Rate=38.4`
- al. Press the  **<ACROSS>** key until the display reads `Flow=XON/XOFF`
- am. Press the  **<DOWN>** key, the display reads `Flow:RTS/CTS`
- an. Press the  **<ENTER>** key, the display reads `Flow=RTS/CTS`
- ao. Press the  **<ACROSS>** key until the display reads `DTR=High`
- ap. Press the  **<DOWN>** key, the display reads `DTR:108.1`
- aq. Press the  **<ENTER>** key, the display reads `DTR=108.1`
- ar. Press the  **<ACROSS>** key until the display reads `RTS=High`
- as. Press the  **<DOWN>** key, the display reads `RTS:Normal`
- at. Press the  **<ENTER>** key, the display reads `RTS=Normal`
- au. Press the  **<ACROSS>** key until the display reads `CTS=AsyncSync`
- av. Press the  **<DOWN>** key until the display reads `CTS:Normal`

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE


- aw. Press the  **<ENTER>** key, the display reads CTS=Normal
- ax. Press the  **<ACROSS>** key until the display reads DCD=High
- ay. Press the  **<DOWN>** key until the display reads DCD:Normal
- az. Press the  **<ENTER>** key, the display reads DCD=Normal
- ba. Press the  **<ACROSS>** key until the display reads DSR=High
- bb. Press the  **<DOWN>** key until the display reads DSR:Normal
- bc. Press the  **<ENTER>** key, the display reads DSR=Normal
- bd. Press the  **<RETURN>** key, the display reads TERMINAL OPT'S
- be. Press the  **<DOWN>** key until the display reads TELCO OPT'S
- bf. Press the  **<ACROSS>** key until the display reads LL Tx Level=0


NOTE


For now this item should be set to -15 dBm for direct wire applications and dedicated modems without circuits connected to them. (These modems will eventually have OPUP circuits connected to them, and the exact transmit levels will be set per instructions in the associated RPG modification note which supports OPUP's deployment.


ATTACHMENT 6 (Continued)


MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE


bg. Press the  **<DOWN>** key until the display reads LL Tx Level:-15

bh. Press the  **<ENTER>** key, the display reads LL Tx Level=-15

bi. Press the  **<RETURN>** key twice to return to the home screen

bj. Press the  **<ACROSS>** key until the display reads Save Changes=1

bk. Press the  **<ENTER>** key and wait until the display reads Save Complete!



bl. Press the  **<RETURN>** key twice to return to the home screen

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

NOTE

The Codex 3262 Dial Port Modem contains two independently functioning dial modems on a single card. The A/B indicator at the front panel is illuminated when modem A information is displayed. When the indicator is Off, modem B front panel information is displayed. To toggle between modem A and modem B front panels,

hold the  (RETURN) key and then press the  (ENTER) key.

15. Perform the following steps to setup the PPP dial modem in slot 4B:

- a. Press the  <RETURN> key twice (ensures beginning from home screen).
- b. Press the  <ACROSS> key until the display reads `Reinit Memory?`
- c. Press the  <ENTER> key once, the display reads `Reinit All Mem?`
- d. Press the  <ENTER> key again, the display reads `3262 Initial`
- e. Press the  <RETURN> key, the display reads `Disconnect T/D?`
- f. Press the  <ACROSS> key until the display reads `Power Up In=Old`
- g. Press the  <DOWN> key until the display reads `Power Up In:1`
- h. Press the  <ENTER> key, the display reads `Power Up In=1`
- i. Press the  <ACROSS> key until the display reads `S-Reg 000=000`

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- j. Press the  <DOWN> key until the display reads S-Reg 007=030
- k. Press the  <ENTER> key, the display reads S-Reg 007:030 (Blinking cursor over the first 0 in 030)
- l. Press the  <DOWN> key until the display reads S-Reg 007:130
- m. Press the  <ACROSS> key until the display reads S-Reg 007:130 (Blinking cursor over the 3 in 130)
- n. Press the  <DOWN> key until the display reads S-Reg 007:180
- o. Press the  <ENTER> key, the display reads S-Reg 007=180
- p. Press the  <RETURN> key, the display reads Disconnect T/D?
- q. Press the  <DOWN> key until the display reads MODULATION OPT'S
- r. Press the  <ACROSS> key until the display reads Min Rate=300
- s. Press the  <DOWN> key until the display reads Min Rate:4800
- t. Press the  <ENTER> key, the display reads Min Rate=4800
- u. Press the  <ACROSS> key until the display reads Mode=Originate














ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- v. Press the  <DOWN> key, the display reads Mode:Answer
- w. Press the  <ENTER> key, the display reads Mode=Answer
- x. Press the  <RETURN> key, the display reads MODULATION OPT'S
- y. Press the  <DOWN> key until the display reads EC/DC OPT'S
- z. Press the  <ACROSS> key, the display reads Modem Flow=On
- aa. Press the  <DOWN> key until the display reads Modem Flow:Off
- ab. Press the  <ENTER> key, the display reads Modem Flow=Off
- ac. Press the  <RETURN> key, the display reads EC/DC OPT'S
- ad. Press the  <DOWN> key until the display reads ACU OPT'S
- ae. Press the  <ACROSS> key, the display reads Answer=Using S0
- af. Press the  <DOWN> key until the display reads Answer:Ring #2
- ag. Press the  <ENTER> key, the display reads Answer=Ring #2
- ah. Press the  <RETURN> key, the display reads ACU OPT'S

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- ai. Press the  **<DOWN>** key until the display reads `TERMINAL OPT'S`
- aj. Press the  **<ACROSS>** key, the display reads `DTE Rate=Auto`
- ak. Press the  **<DOWN>** key until the display reads `DTE Rate:38.4`
- al. Press the  **<ENTER>** key, the display reads `DTE Rate=38.4`
- am. Press the  **<ACROSS>** key until the display reads `Flow=XON/XOFF`
- an. Press the  **<DOWN>** key until the display reads `Flow:RTS/CTS`
- ao. Press the  **<ENTER>** key, the display reads `Flow=RTS/CTS`
- ap. Press the  **<ACROSS>** key until the display reads `DTR=High`
- aq. Press the  **<DOWN>** key until the display reads `DTR:108.2`
- ar. Press the  **<ENTER>** key, the display reads `DTR=108.2`
- as. Press the  **<ACROSS>** key until the display reads `RTS=High`
- at. Press the  **<DOWN>** key until the display reads `RTS:Normal`
- au. Press the  **<ENTER>** key, the display reads `RTS=Normal`




ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- av. Press the  **<ACROSS>** key until the display reads `CTS=AsyncSync`
- aw. Press the  **<DOWN>** key until the display reads `CTS:Normal`
- ax. Press the  **<ENTER>** key, the display reads `CTS=Normal`
- ay. Press the  **<ACROSS>** key until the display reads `DCD=High`
- az. Press the  **<DOWN>** key, the display reads `DCD:Normal`
- ba. Press the  **<ENTER>** key, the display reads `DCD=Normal`
- bb. Press the  **<ACROSS>** key until the display reads `DCD Loss Dis=S10`
- bc. Press the  **<DOWN>** key, the display reads `DCD Loss Dis:7s`
- bd. Press the  **<ENTER>** key, the display reads `DCD Loss Dis=7s`
- be. Press the  **<ACROSS>** key until the display reads `DSR=High`
- bf. Press the  **<DOWN>** key, the display reads `DSR:Normal`
- bg. Press the  **<ENTER>** key, the display reads `DSR=Normal`
- bh. Press the  **<ACROSS>** key until the display reads `Inactivity=S30`

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE


- bi. Press the  **<DOWN>** key, the display reads `Inactivity:3min`
- bj. Press the  **<ENTER>** key, the display reads `Inactivity=3min`
- bk. Press the  **<RETURN>** key, the display reads `TERMINAL OPT'S`


ATTACHMENT 6 (Continued)


MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE


NOTE


Steps bl through bp should only be performed at sites with "programmable" vs. "permissive" telephone jacks, this may include sites that have their systems connected to PBXs. This setting affects the output power level of the modem on the phone line. Setting RJ11C on a "programmable" line will result in too much power being output on the phone line, and most likely, complaints from the local telephone company. With a PBX connection, the normal output level of -9 dBm may be too "hot." Most of the systems in the WSR-88D program have the "permissive" system, and should be set to RJ11C. This information is provided for those sites that are exceptions. For sites with PBXs, if the modem is connected to a PBX rather than a direct outside line, and connection problems are being experienced at the site, RJ45S may be a better setting. There is no other option for these modems that affects output dial line power level.


bl. Press the  <DOWN> key, the display reads TELCO OPT'S

bm. Press the  <ACROSS> key, the display reads Telco=RJ11C


bn. Press the  <DOWN> key until the display reads Telco:RJ45S

bo. Press the  <ENTER> key, and wait until the display reads Telco=RJ45S

bp. Press the  <RETURN> key, the display reads TELCO OPT'S









bq. Press the  <DOWN> key until the display reads DIALING OPT'S

br. Press the  <ACROSS> key, the display reads Dial=Tone

bs. Press the  <DOWN> key until the display reads Dial:Auto

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

- bt. Press the  **<ENTER>** key, and wait until the display reads `Dial=Auto`
- bu. Press the  **<ACROSS>** key, the display reads `Call Timeout=60`
- bv. Press the  **<DOWN>** key until the display reads `Call Timeout:S7`
- bw. Press the  **<ENTER>** key, and wait until the display reads `Call Timeout=S7`
- bx. Press the  **<RETURN>** key twice to return to the home screen.
- by. Press the  **<ACROSS>** key until the display reads `Save Changes=1`
- bz. Press the  **<ENTER>** key, and wait until the display reads `Save Completed!`
- ca. Press the  **<RETURN>** key twice to return to the home screen.
16. Close and lock the modem rack assembly door. Remove the key from the lock.
17. Close the UD70 cabinet front door.
18. FAA Redundant sites: Repeat [ATTACHMENT 6](#) in its entirety for the other channel.
19. This completes the replacement procedure.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
ABERDEEN	KABR	Move one modem from slot 13 to 17.
ALBANY	KENX	Move one modem from slot 14 to 17.
ALBUQUERQUE	KABX	Move one modem from slot 14 to 17.
ALTUS AFB	KFDR	Move two modems from slots 15 and 16 to 18 and 19
AMARILLO	KAMA	Move one modem from slot 16 to 17.
ANCHORAGE FAA (RPG 1)	PAHG	Move one modem from slot 15 to 17.
ANCHORAGE FAA (RPG 2)	PAHG	Move one modem from slot 15 to 17.
ANDERSEN AFB	PGUA	Move one modem from slot 13 to 17.
ATLANTA	KFFC	Move two modems from slots 14 and 15 to 17 and 18.
AUSTIN/SAN ANTONIO	KEWX	Move one modem from slot 15 to 17.
BEALE AFB	KBBX	Move one modem from slot 14 to 17.
BETHEL FAA (RPG 1)	PABC	Move one modem from slot 12 to 17.
BETHEL FAA (RPG 2)	PABC	Move one modem from slot 12 to 17.
BILLINGS	KBLX	Move one modem from slot 13 to 17.
BINGHAMTON	KBGM	Move one modem from slot 13 to 17.
BIRMINGHAM	KBMX	Move one modem from slot 13 to 17.
BISMARCK	KBIS	Move one modem from slot 13 to 17.
BOISE	KCBX	Move one modem from slot 14 to 17.
BOSTON	KBOX	Move one modem from slot 16 to 17.
BRANDON, MS	KDGX	Move one modem from slot 14 to 17.
BROOKHAVEN	KOKX	Move one modem from slot 14 to 17.
BROWNSVILLE	KBRO	Move one modem from slot 13 to 17.
BUFFALO	KBUF	Move one modem from slot 14 to 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
BURLINGTON	KCXX	Move one modem from slot 14 to 17.
CAMP HUMPHREYS	RKSG	Modem already installed in slot 17.
CANNON AFB	KFDX	Move two modems from slots 13 and 14 to 17 and 18.
CARIBOU	KCBW	Move one modem from slot 14 to 17.
CEDAR CITY	KICX	Move one modem from slot 15 to 17.
CHARLESTON, SC	KCLX	Move one modem from slot 16 to 17.
CHARLESTON, WV	KRLX	Move one modem from slot 13 to 17.
CHEYENNE	KCYS	Move two modems from slots 13 and 14 to 17 and 18.
CHICAGO	KLOT	Move one modem from slot 14 to 17.
CINCINNATI	KILN	Move one modem from slot 16 to 19.
CLEVELAND	KCLE	Move one modem from slot 13 to 17.
COLUMBIA	KCAE	Move one modem from slot 11 to 18.
COLUMBUS AFB	KGWX	Move one modem from slot 15 to 17.
CORPUS CHRISTI	KCRP	Move two modems from slots 15 and 16 to 17 and 18.
DALLAS/FT WORTH	KFWS	Move one modem from slot 16 to 17.
DENVER	KFTG	Move one modem from slot 15 to 17.
DES MOINES	KDMX	Move one modem from slot 13 to 17.
DETROIT	KDTX	Move one modem from slot 14 to 17.
DODGE CITY	KDDC	Move one modem from slot 15 to 17.
DOVER AFB	KDOX	Move one modem from slot 15 to 17.
DULUTH	KDLH	Move one modem from slot 13 to 17.
DYESS AFB	KDYX	Move two modems from slots 14 and 15 to 17 and 18.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
EDWARDS AFB	KEYX	Move two modems from slots 15 and 16 to 17 and 18.
EGLIN AFB	KEVX	Move three modems from slots 14 through 16 to 17 through 19.
EL PASO	KEPZ	Move one modem from slot 13 to 17.
ELKO	KLRX	Move one modem from slot 13 to 17.
EUREKA (BUNKER HILL)	KBHX	Move one modem from slot 13 to 17.
EVANSVILLE,IN	KVWU	Modem already installed in slot 17.
FAIRBANKS FAA (RPG 1)	PAPD	Move one modem from slot 15 to 17.
FAIRBANKS FAA (RPG 2)	PAPD	Move one modem from slot 14 to 17.
FARGO/GRAND FORKS	KMVX	Move one modem from slot 14 to 17.
FLAGSTAFF	KFSX	Move one modem from slot 13 to 17.
FT CAMPBELL	KHPX	Move one modem from slot 13 to 17.
FT DRUM	KTYX	Move one modem from slot 16 to 17.
FT HOOD	KGRK	Move one modem from slot 14 to 17.
FT POLK	KPOE	Move one modem from slot 13 to 17.
FT RUCKER	KEOX	Move one modem from slot 13 to 17.
GLASGOW	KGGW	Move one modem from slot 13 to 17.
GOODLAND	KGLD	Move one modem from slot 13 to 17.
GRAND ISLAND	KUEX	Move one modem from slot 13 to 17.
GRAND JUNCTION	KGJX	Move one modem from slot 14 to 17.
GRAND RAPIDS	KGRR	Move one modem from slot 13 to 17.
GREAT FALLS	KTFX	Move two modems from slots 13 and 14 to 17 and 18.
GREEN BAY	KGRB	Move one modem from slot 13 to 17.
GREER	KGSP	Move one modem from slot 13 to 17.
HOLLOMAN AFB	KHDX	Move one modem from slot 15 to 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
HOUSTON	KHGX	Move one modem from slot 15 to 17.
INDIANAPOLIS	KIND	Move one modem from slot 14 to 17.
JACKSON, KY	KJKL	Move one modem from slot 14 to 17.
JACKSONVILLE	KJAX	Move one modem from slot 14 to 19.
KADENA AB	RODN	Move two modems from slots 15 and 16 to 17 and 18.
KAMUELA/KOHALA APT(RPG 1)	PHKM	Move one modem from slot 12 to 17.
KAMUELA/KOHALA APT(RPG 2)	PHKM	Move one modem from slot 12 to 17.
KEESLER AFB MNTC TRNG A	DKM1	Move one modem from slot 11 to 17.
KEESLER AFB MNTC TRNG B	DKM2	Add one new modem in slot 17.
KEY WEST	KBYX	Move one modem from slot 15 to 17.
KING SALMON FAA (RPG 1)	PAKC	Move one modem from slot 13 to 17.
KING SALMON FAA (RPG 2)	PAKC	Move one modem from slot 13 to 17.
KNOXVILLE	KMRX	Move one modem from slot 13 to 17.
KUNSAN AB	RKJK	Move one modem from slot 15 to 17.
LA CROSSE	KARX	Move one modem from slot 13 to 17.
LAJES AB	LPLA	Move one modem from slot 12 to 17.
LAKE CHARLES	KLCH	Move one modem from slot 13 to 17.
LAS VEGAS	KESX	Move two modems from slots 15 and 16 to 17 and 18.
LAUGHLIN AFB	KDFX	Move one modem from slot 14 to 17.
LINCOLN	KILX	Move one modem from slot 13 to 17.
LITTLE ROCK	KLZK	Move one modem from slot 14 to 17.
LOS ANGELES	KVTX	Move one modem from slot 16 to 17.
LOUISVILLE	KLVX	Move one modem from slot 15 to 17.
LUBBOCK	KLBB	Move one modem from slot 14 to 17.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
MARQUETTE	KMQT	Move one modem from slot 14 to 17.
MAXWELL AFB	KMXX	Move two modems from slots 14 and 15 to 17 and 18.
MEDFORD	KMAX	Move one modem from slot 13 to 17.
MELBOURNE	KMLB	Unassigned modems already installed in slots 17 through 19.
MEMPHIS	KNQA	Move one modem from slot 14 to 17.
MIAMI	KAMX	Move one modem from slot 15 to 17.
MIDDLETON ISLAND (RPG 1)	PAIH	Move one modem from slot 13 to 17.
MIDDLETON ISLAND (RPG 2)	PAIH	Move one modem from slot 13 to 17.
MIDLAND/ODESSA	KMAF	Move one modem from slot 13 to 17.
MILWAUKEE	KMKX	Move one modem from slot 14 to 17.
MINNEAPOLIS	KMPX	Move one modem from slot 14 to 17.
MINOT AFB	KMBX	Move one modem from slot 14 to 17.
MISSOULA	KMSX	Move one modem from slot 13 to 17.
MOBILE	KMOB	Move one modem from slot 16 to 18 and add one new modem in slot 19.
MOLOKAI FAA (RPG 1)	PHMO	Move two modems from slots 15 and 16 to 18 and 19.
MOLOKAI FAA (RPG 2)	PHMO	Move two modems from slots 15 and 16 to 18 and 19.
MOODY AFB	KVAX	Move one modem from slot 13 to 17.
MOREHEAD CITY	KMHX	Move two modems from slots 14 and 15 to 17 and 18.
NASHVILLE	KOHX	Move one modem from slot 13 to 17.
NCL MICHIGAN	KAPX	Move one modem from slot 14 to 17.
NOME FAA (RPG 1)	PAEC	Move one modem from slot 13 to 17.
NOME FAA (RPG 2)	PAEC	Move one modem from slot 13 to 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
NORFOLK	KAKQ	Add one new modem in slot 20.
NORMAN	KTLX	Unassigned modems already installed in slots 17 through 19.
NORTH PLATTE	KLNX	Move one modem from slot 13 to 17.
NORTHEAST ALABAMA	KHTX	Move one modem from slot 14 to 17.
NORTHERN INDIANA	KIWX	Move two modems from slots 12 and 13 to 17 and 18.
NRC #1	NRC1	Move one modem from slot 08 to 17.
NRC #2	NRC2	Move one modem from slot 09 to 17.
NWSHQ TESTBED	NHQ1	Move one modem from slot 13 to 17.
OMAHA	KOAX	Add two new modems in slots 17 and 18.
PADUCAH	KPAH	Move one modem from slot 13 to 17.
PENDLETON	KPDT	Move one modem from slot 13 to 17.
PHILADELPHIA	KDIX	Move one modem from slot 16 to 18.
PHOENIX	KIWA	Move one modem from slot 15 to 17.
PITTSBURGH	KPBZ	Move one modem from slot 14 to 17.
PLEASANT HILL	KEAX	Unassigned modems already installed in slots 17 through 19.
POCATELLO	KSFX	Move one modem from slot 13 to 17.
PORTLAND, ME	KGYX	Move one modem from slot 14 to 17.
PORTLAND, OR	KRTX	Move one modem from slot 14 to 17.
PRC RPG	NPC1	Move one modem from slot 08 to 17.
PUEBLO	KPUX	Move two modems from slots 15 and 16 to 18 and 19 and add two new modems in slots 20 and 21.
QUAD CITIES	KDVN	Move one modem from slot 13 to 17.
RALEIGH/DURHAM	KRAX	Modem already installed in slot 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
RAPID CITY	KUDX	Move two modems from slots 13 and 14 to 17 and 18.
RENO	KRGX	Move one modem from slot 14 to 17.
RIVERTON/LANDER	KRIW	Move one modem from slot 13 to 17.
ROANOKE	KFCX	Move one modem from slot 13 to 17.
ROBINS AFB	KJGX	Move one modem from slot 15 to 17.
ROC DOD RPG (KREX)	DRX1	Modems already installed in slots 17 through 20.
ROC FAA REDUNDANT (RPG 1)	FOP2	Modems already installed in slots 17 through 20.
ROC FAA REDUNDANT (RPG 2)	FOP1	Modems already installed in slots 17 through 20.
RPG3 NWS RPG	NOP3	Modems already installed in slots 17 through 20.
ROC4 NWS RPG	NOP4	Modems already installed in slots 17 through 20.
ROC5 NWS RPG	NOP5	Modem already installed in slot 17.
SACRAMENTO	KDAX	Move one modem from slot 16 to 17.
SALT LAKE CITY	KMTX	Move one modem from slot 16 to 17.
SAN ANGELO	KSJT	Move one modem from slot 13 to 17.
SAN DIEGO	KNKX	Move three modems from slots 14 through 16 to 17 through 19.
SAN FRANCISCO	KMUX	Move one modem from slot 14 to 17.
SAN JOAQUIN VALY	KHNX	Move one modem from slot 14 to 17.
SAN JUAN FAA (RPG 1)	TJUA	Move two modems from slots 14 and 15 to 17 and 18.
SAN JUAN FAA (RPG 2)	TJUA	Move two modems from slots 14 and 15 to 17 and 18.
SANTA ANA MTS	KSOX	Move one modem from slot 15 to 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
SEATTLE	KATX	Move two modems from slots 15 and 16 to 17 and 18.
SHANGHAI, CHINA		Modem already installed in slot 17.
SHREVEPORT	KSHV	Move one modem from slot 14 to 17 and add one new modem in slot 18.
SIOUX FALLS	KFSD	Move one modem from slot 13 to 17.
SITKA FAA (RPG 1)	PACG	Move one modem from slot 13 to 17.
SITKA FAA (RPG 2)	PACG	Move one modem from slot 13 to 17.
SLIDELL	KLIX	Move one modem from slot 15 to 17.
SOUTH KAUAI FAA (RPG 1)	PHKI	Move one modem from slot 12 to 17.
SOUTH KAUAI FAA (RPG 2)	PHKI	Move one modem from slot 12 to 17.
SOUTH SHORE FAA (RPG 1)	PHWA	Move one modem from slot 13 to 17.
SOUTH SHORE FAA (RPG 2)	PHWA	Move one modem from slot 13 to 17.
SPOKANE	KOTX	Move one modem from slot 14 to 17.
SPRINGFIELD	KSGF	Move one modem from slot 13 to 17.
ST LOUIS	KLSX	Move one modem from slot 15 to 17.
STATE COLLEGE	KCCX	Move one modem from slot 14 to 17.
STERLING	KLWU	Assigned modems are installed in slots 17 through 20.
TAIPEI, TAIWAN	RCWF	Unassigned modems already installed in slots 17 through 20.
TALLAHASSEE	KTLH	Move one modem from slot 13 to 17.
TAMPA	KTBW	Move two modems from slots 13 and 14 to 17 and 18.
TOPEKA	KTWX	Move one modem from slot 14 to 17.
TRAINING CENTER #1 NWSTC	NTC1	Move one modem from slot 09 to 17.
TRAINING CENTER #2 NWSTC	NTC2	Move one modem from slot 09 to 17.

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
TUCSON	KEMX	Move one modem from slot 14 to 17.
TULSA	KINX	Move one modem from slot 15 to 17.
VANCE AFB	KVNX	Move two modems from slots 14 and 15 to 17 and 18.
VANDENBERG AFB	KVBX	Move one modem from slot 15 to 17.
WDTB RPG	NOP5	Move one modem from slot 16 to 17.
WESTERN ARKANSAS	KSRX	Move one modem from slot 15 to 17.
WICHITA	KICT	Move two modems from slots 13 and 14 to 17 and 18.
WILMINGTON	KLTX	Move one modem from slot 13 to 17.
YUMA	KYUX	Move one modem from slot 15 to 17.

ATTACHMENT 7

RPG DEDICATED WIRING CHECK FROM NEXRAD DEMARC

Tools/Materials Required:

Transmission line test set (SERD 15) AM-48
Flashlight

Initial Conditions:

- Successfully completed [ATTACHMENT 1](#) through [ATTACHMENT 6](#). (as applicable).
- For FAA redundant site, completed [ATTACHMENT 2](#) through [ATTACHMENT 6](#) on both RPG 1 and RPG 2.
- For FAA, start procedure with the current active/controlling channel.

Purpose:

The RPG Circuit Loopback test checks the continuity of circuits from each RPG modem to the NEXRAD RPG block labeled TB-4 (e.g. 2-RJ2DX or 2nd dedicated). This check verifies the continuity of both the Tx and Rx pairs from modem to block. For NWS RPGs, the first five 4-wire circuits will be checked on TB-4. For DoD/FAA RPGs, the first four 4-wire circuits will be checked on the TB4.

NOTE

Both the AM-48 and WSR-88D communications circuits are polarity insensitive. The TB-4 dedicated demarcation/TELCO 66 block has 50 vertical connections starting at the top with 1 and ending at the bottom with 50. Leased line modem 17 corresponds to the top with Tx at terminals 1 and 2, and Rx at terminals 3 and 4. Modem 2's Tx is normally at terminals 5 and 6 with Rx at 7 and 8, etc. Reference [ATTACHMENT 7, Figure 1](#) for specific circuits to be checked.

ATTACHMENT 7 (Continued)

RPG DEDICATED WIRING CHECK FROM NEXRAD DEMARC

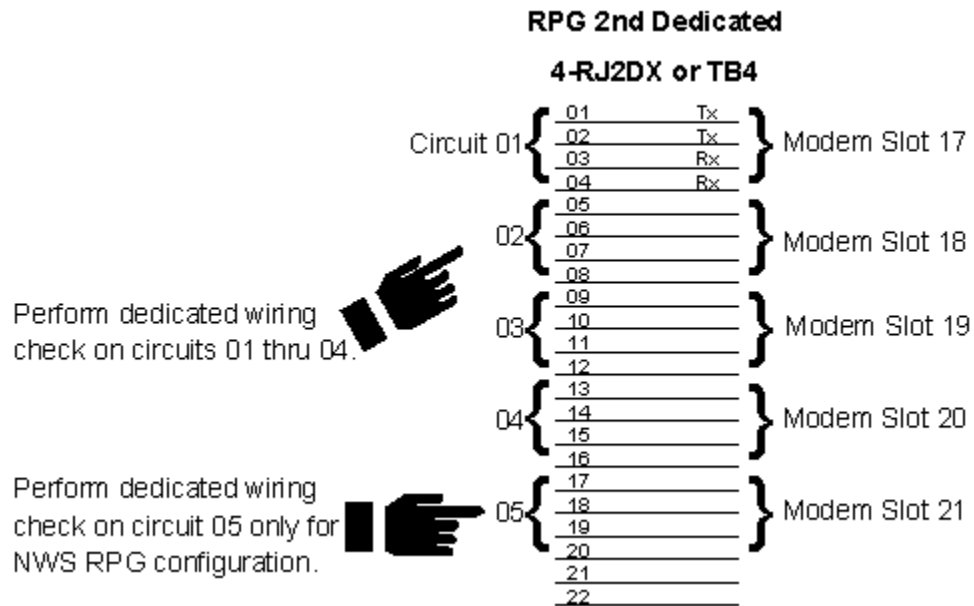


Figure 1. RPG External Wiring to be Checked

1. DoD/FAA: Start at the NEXRAD punch down block labeled TB4 or Leased/Ded 4-RJ2DX. Proceed to step 4.
2. NWS: Start at the NEXRAD punch down block labeled TB-4 or Leased/Ded 4-RJ2DX. If the site has an extended NEXRAD demarc in the telephone equipment room, you may perform this procedure at the corresponding government block closest to the TELCO provider(s) cross-connect block(s). In this case, install bridging clips or surge protectors on the first five dedicated 4-wire circuits on the NEXRAD block TB-4.

NOTE

All references to figures and specific test set procedures contained in steps 3 through 23 below are to the Ameritech Model AM-48/AM-48E Personal Transmission Set Instruction Manual.

3. Complete steps 4 through 23 for Circuit 01.
4. Using the AM-48 test cable 48-0049, install a temporary connection between the Tx Rx pairs on the RPG side of the punch down block. Refer to paragraph 6.03 AM-48 Interface with Line Connections and the Figure 6-2 labeled 4-WIRE to see the exact sequence of the AM-48 R (red) and T (green) connectors to the 66 block Tx pins and the R1 (black), T1 (yellow) connectors to the Rx pins.

ATTACHMENT 7 (Continued)

RPG DEDICATED WIRING CHECK FROM NEXRAD DEMARC


5. Plug the AC adapter into the AM-48 DC 9V plug and into a 120 VAC outlet. Turn on the AM-48 power switch.
6. Starting from the top left side of the unit, set the following color coded rocker switches as indicated:
7. Place the **►TERM / ◄BRIDGE** switch to the **►TERM** position.
8. Place the **▲2W / •4W / ▼4W REV** switch to the **▼4W REV** position.
9. Place the **▲900 Ω / ▼600 Ω** switch to the **▼600 Ω** position.
10. Press the **ABS/REL/SEND** switch to the **ABS** position.
11. The RPG modem should be sending a 600 HZ tone at -15 DBM. Verify by looking at the top of the LCD to see a reading of 600 under the HZ label and -15 +/- 2 DBM under the DBM label. This step verifies the Tx pair wiring is good all the way to the block from the modem.
12. Press the yellow **SEND/SEL** rocker switch until **VAR** is highlighted in the LCD display.
13. Press the **ABS/REL/SEND** switch to the **SEND** position.
14. Press the right side rocker switch labeled **◄MF / •DTMF / ►SHIFT** to the **►SHIFT** position.
15. Press **ETR/NEXT** to display **DBM LEVL** in the LCD window.
16. Press (in order) **0, 1, 5, 0, -**, the LCD display should read **LEVL -15.0**.
17. Press **ETR/NEXT** twice, the LCD display should read **FrEq**.
18. Press (in order) **0, 1, 8, 0, 0**, the LCD display should read **FrEq 1800**.
19. Press **ETR/NEXT** twice, the LCD display should read **-15.0 1800**.
20. Toggle the **ABS/REL/SEND** switch from **SEND** to **REL** to **SEND** to exit the variable SEND menu.
21. If you want to audibly monitor the tone as well, toggle the **◄DAMP / ►OFF** switch to **◄DAMP** and the **►MON RCV / •MON SND / ◄TALK** switch to either **►MON RCV** to hear the modem tone or **•MON SND** to hear the AM-48 generated tone being sent to the modem.

ATTACHMENT 7 (Continued)

RPG DEDICATED WIRING CHECK FROM NEXRAD DEMARC

NOTE

An 1800 Hz tone corresponds to a Codex modem set for originate.
A 600 Hz tone corresponds to the Codex modem set to answer.

22. Go to the front of the UD70/170 RPG cabinet and open the front right door.
 - a. Open the cover of the Codex Modem Nest (A14).
 - b. Observe the corresponding modem LCD for the circuit under test. If the LCD is not lit, press the  <RETURN> key once to light the LCD. Observe the modem cycling between Ranging, Training, and Synchronizing. This step verifies the Rx pair wiring is good all the way from the block to the modem.
23. Remove the AM-48 test cable (48-0049). Replace the four bridge clips or two surge suppressors, as applicable.
24. Repeat steps 3 through 23 for each subsequent 4-wire dedicated line (e.g. circuits 02 to 04 for DoD/FAA or circuits 02 to 05 for NWS). Recall step 10 verifies the wiring for the modem TX pair, and step 21 verifies the wiring for the modem RX pair. If any of the 4-wire circuits to be tested maps to an empty modem slot, temporarily move the modem in slot 17 to the corresponding modem slot.
25. Return the test modem to its permanent location at slot 17.
26. Close the cover of the Codex Modem Nest (A14).
27. **FAA Redundant sites:** Make this channel inactive/non-controlling. Then, repeat steps 1 through 26 on the controlling/active channel.

ATTACHMENT 8

RETROFIT SUMMARIZATION

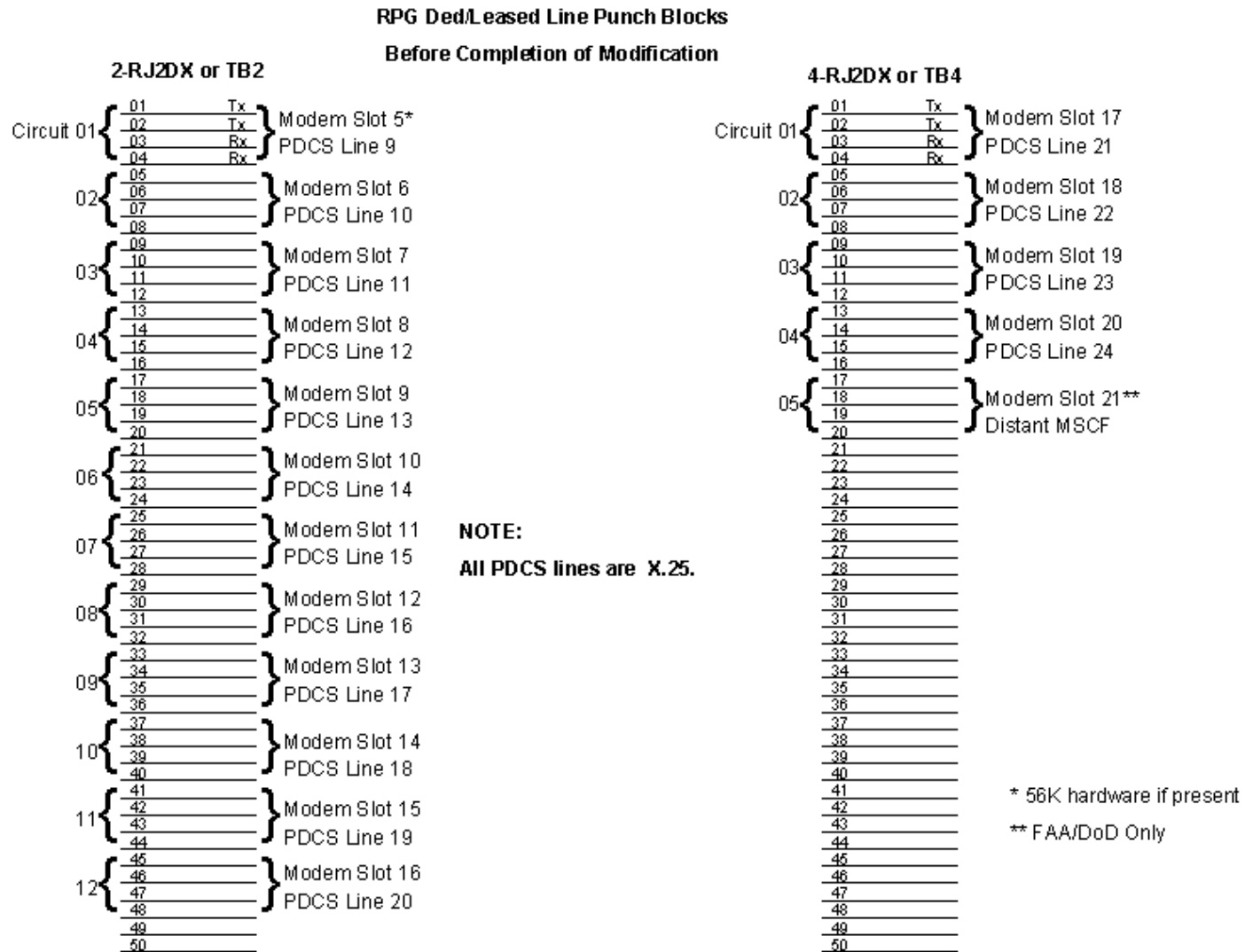


Figure 1. RPG DED/Leased Line Punch Blocks Before Modification

ATTACHMENT 8 (Continued)

RETROFIT SUMMARIZATION

RPG Ded/Leased Line Punch Blocks			
2-RJ20X or TB2	After Completion of Modification	4-RJ20X or TB4	
Circuit 01 { 01 Tx 02 Tx 03 Rx 04 Rx }	Modem Slot 5* PDCS Line 9	Circuit 01 { 01 Tx 02 Tx 03 Rx 04 Rx }	Modem Slot 17 PDCS Line 33
02 { 05 06 07 08 }	Modem Slot 6 PDCS Line 10	02 { 05 06 07 08 }	Modem Slot 18 PDCS Line 34
03 { 09 10 11 12 }	Modem Slot 7 PDCS Line 11	03 { 09 10 11 12 }	Modem Slot 19 PDCS Line 35
04 { 13 14 15 16 }	Modem Slot 8 PDCS Line 12	04 { 13 14 15 16 }	Modem Slot 20 PDCS Line 36
05 { 17 18 19 20 }	Modem Slot 9 PDCS Line 13	05 { 17 18 19 20 }	Modem Slot 21 Distant MSCF** or PDCS Line 37***
06 { 21 22 23 24 }	Modem Slot 10 PDCS Line 14	21 22 23 24 }	
07 { 25 26 27 28 }	Modem Slot 11 PDCS Line 15	25 26 27 28 }	
08 { 29 30 31 32 }	Modem Slot 12 PDCS Line 16	29 30 31 32 }	
09 { 33 34 35 36 }	Modem Slot 13 PDCS Line 17	33 34 35 36 }	
10 { 37 38 39 40 }	Modem Slot 14 PDCS Line 18	37 38 39 40 }	
11 { 41 42 43 44 }	Modem Slot 15 PDCS Line 19	41 42 43 44 }	
12 { 45 46 47 48 }	Modem Slot 16 PDCS Line 20	45 46 47 48 }	
49 50		49 50	
NOTE: PDCS Lines 21 - 24 not used now. PDCS Lines 33 - 37 are PPP.			
	* 56K hardware if present		
	** FAA/DoD Only		
	*** NWS Only. PDCS Line 37 not used in FAA/DoD.		

Figure 2. RPG DED/Leased Line Punch Blocks After Modification

NWS: EHB-6, Modification Note 65
DoD: TO 31P1-4-108-607
FAA: EEM Modification Handbook 6345.1 CHG 38, Chap 35

ATTACHMENT 8 (Continued)

RETROFIT SUMMARIZATION

RPG Dial Line Punch Block

Before Completion of Modification

1-RJ2DX or TB 1

Circuit 01	{ 01	Modem Slot 1A
	{ 02	PDCS Line 1
	{ 03	Modem Slot 1B
02	{ 04	PDCS Line 2
	{ 05	Modem Slot 2A
03	{ 06	PDCS Line 3
	{ 07	Modem Slot 2B
04	{ 08	PDCS Line 4
	{ 09	Modem Slot 3A
05	{ 10	PDCS Line 5
	{ 11	Modem Slot 3B
06	{ 12	PDCS Line 6
	{ 13	Modem Slot 4A
05	{ 14	PDCS Line 7
	{ 15	Modem Slot 4B
06	{ 16	PDCS Line 8
	{ 17	
	{ 18	
	{ 19	
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NOTE:

All PDCS lines are X.25.

NOTE:

PDCS Line 8 not used now.

PDCS Line 40 is PPP.

After Completion of Modification

1-RJ2DX or TB1

Circuit 01	{ 01	Modem Slot 1A
	{ 02	PDCS Line 1
	{ 03	Modem Slot 1B
02	{ 04	PDCS Line 2
	{ 05	Modem Slot 2A
03	{ 06	PDCS Line 3
	{ 07	Modem Slot 2B
04	{ 08	PDCS Line 4
	{ 09	Modem Slot 3A
05	{ 10	PDCS Line 5
	{ 11	Modem Slot 3B
06	{ 12	PDCS Line 6
	{ 13	Modem Slot 4A
05	{ 14	PDCS Line 7
	{ 15	Modem Slot 4B
06	{ 16	PDCS Line 40
	{ 17	
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	{ 50	

Figure 3. RPG Dial Line Punch Down Block

ATTACHMENT 9

EFFECTIVITY

NWS

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
Eastern Region								
ALBANY	ALBANY, NY	RPG	ALY	WN9518	1			1
BINGHAMTON	JOHNSON CITY, NY	RPG	BGM	WN9515	1			1
BOSTON	TAUNTON, MA	RPG	BOX	WN9509	1			1
BROOKHAVEN	UPTON, NY	RPG	OKX	WN9912	1			1
BUFFALO	BUFFALO, NY	RPG	BUF	WN9528	1			1
BURLINGTON	SOUTH BURLINGTON, VT	RPG	BTV	WN9617	1			1
CARIBOU	CARIBOU, ME	RPG	CAR	WN9712	1			1
CHARLESTON, SC	CHARLESTON, SC	RPG	CHS	WN9208	1			1
CHARLESTON, WV	CHARLESTON, WV	RPG	RLX	WN9414	1			1
CINCINNATI	WILMINGTON, OH	RPG	ILN	WN9710	1			1
CLEVELAND	CLEVELAND, OH	RPG	CLE	WN9524	1			1
COLUMBIA	WEST COLUMBIA, SC	RPG	CAE	WN9310	1			1
GREER	GREER, SC	RPG	GSP	WN9312	1			1
MOREHEAD CITY	NEWPORT, NC	RPG	MHX	WN9307	1			1
NORFOLK	WAKEFIELD, VA	RPG	AKQ	WN9952	1		1	1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
PHILADELPHIA	MOUNT HOLLY, NJ	RPG	PHI	WN9950		1		1
PITTSBURGH	CORAOPOLIS, PA	RPG	PBZ	WN9917		1		1
PORTLAND, ME	GRAY, ME	RPG	GYX	WN9938		1		1
RALEIGH/DURHAM	RALEIGH, NC	RPG	RAH	WN9306		1		1
ROANOKE	BLACKSBURG, VA	RPG	RNK	WN9954		1		1
STATE COLLEGE	STATE COLLEGE, PA	RPG	CTP	WN9925		1		1
STERLING	STERLING, VA	RPG	LWX	WN9931		1		1
WILMINGTON	WILMINGTON, NC	RPG	ILM	WN9301		1		1
Southern Region								
ALBUQUERQUE	ALBUQUERQUE, NM	RPG	ABQ	WP9365		1		1
AMARILLO	AMARILLO, TX	RPG	AMA	WP9363		1		1
ATLANTA	PEACHTREE CITY, GA	RPG	FFC	WP9219		1		1
AUSTIN/SAN ANTONIO	NEW BRAUNFELS, TX	RPG	EWX	WP9253		1		1
NORTHEAST ALABAMA	HUNTSVILLE, AL	RPG	HUN	WP9914		1		1
BIRMINGHAM	ALABASTER, AL	RPG	BMX	WP9957		1		1
BRANDON, MS	JACKSON, MS	RPG	JAN	WP9235		1		1
BROWNSVILLE	BROWNSVILLE, TX	RPG	BRO	WP9250		1		1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
CORPUS CHRISTI	CORPUS CHRISTI, TX	RPG	CRP	WP9251		1		1
DALLAS/FT WORTH	FORT WORTH, TX	RPG	FWD	WP9259		1		1
EL PASO	SANTA TERESA, NM	RPG	EPZ	WP9270		1		1
HOUSTON	DICKINSON, TX	RPG	HGX	WP9935		1		1
JACKSONVILLE	JACKSONVILLE, FL	RPG	JAX	WP9206		1		1
KEY WEST	BOCA CHICA KEY, FL	RPG	BYX	WP9201		1		1
KNOXVILLE	MORRISTOWN, TN	RPG	MRX	WP9325		1		1
LAKE CHARLES	LAKE CHARLES, LA	RPG	LCH	WP9240		1		1
LITTLE ROCK	NORTH LITTLE ROCK, AR	RPG	LZK	WP9340		1		1
LUBBOCK	LUBBOCK, TX	RPG	LUB	WP9933		1		1
MELBOURNE	MELBOURNE, FL	RPG	MLB	WP9204		1		1
MEMPHIS	MEMPHIS, TN	RPG	MEG	WP9334		1		1
MIAMI	MIAMI, FL	RPG	MFL	WP9918		1		1
MIDLAND/ODESSA	MIDLAND, TX	RPG	MAF	WP9265		1		1
MOBILE	MOBILE, AL	RPG	MOB	WP9223		1	1	1
NASHVILLE	OLD HICKORY, TN	RPG	OHX	WP9327		1		1
NORMAN	NORMAN, OK	RPG	OUN	WP9921		1		1
SAN ANGELO	SAN ANGELO, TX	RPG	SJT	WP9263		1		1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
SHREVEPORT	SHREVEPORT, LA	RPG	SHV	WP9248		1	1	1
SLIDELL	SLIDELL, LA	RPG	LIX	WP9919		1		1
TALLAHASSEE	TALLAHASSEE, FL	RPG	TLH	WP9214		1		1
TAMPA	RUSKIN, FL	RPG	TBW	WP9961		1		1
WESTERN ARKANSAS	TULSA, OK	RPG	TSA	WP9356		1		1
TULSA	TULSA, OK	RPG	TSA	WP9356		1		1

Central Region

ABERDEEN	ABERDEEN, SD	RPG	ABR	WR9659		1		1
BISMARCK	BISMARCK, ND	RPG	BIS	WR9764		1		1
CHEYENNE	CHEYENNE, WY	RPG	CYS	WR9564		1		1
CHICAGO	ROMEOVILLE, IL	RPG	LOT	WR9969		1		1
DENVER	BOULDER, CO	RPG	BOU	WR9469		1		1
DES MOINES	JOHNSTON, IA	RPG	DMX	WR9546		1		1
DETROIT	WHITE LAKE, MI	RPG	DTX	WR9954		1		1
DODGE CITY	DODGE CITY, KS	RPG	DDC	WR9451		1		1
DULUTH	DULUTH, MN	RPG	DLH	WR9745		1		1
PADUCAH	PADUCAH, KY	RPG	PAH	WR9957		1		1

ATTACHMENT 9 (Continued)

EFFECTIVITY									
NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D	
EVANSVILLE, IN	PADUCAH, KY	RPG	PAH	WR9957		1		1	
FARGO/GRAND FORKS	GRAND FORKS, ND	RPG	FGF	WR9750		1		1	
GOODLAND	GOODLAND, KS	RPG	GLD	WR9465		1		1	
GRAND ISLAND	HASTINGS, NE	RPG	GID	WR9552		1		1	
GRAND JUNCTION	GRAND JUNCTION, CO	RPG	GJT	WR9476		1		1	
GRAND RAPIDS	GRAND RAPIDS, MI	RPG	GRR	WR9635		1		1	
GREEN BAY	GREEN BAY, WI	RPG	GRB	WR9645		1		1	
INDIANAPOLIS	INDIANAPOLIS, IN	RPG	IND	WR9438		1		1	
JACKSON, KY	JACKSON, KY	RPG	JKL	WR9956		1		1	
LA CROSSE	LA CROSSE, WI	RPG	ARX	WR9643		1		1	
LINCOLN	LINCOLN, IL	RPG	ILX	WR9436		1		1	
LOUISVILLE	LOUISVILLE, KY	RPG	LMK	WR9423		1		1	
MARQUETTE	NEGAUNEE, MI	RPG	MQT	WR9743		1		1	
MILWAUKEE	DOUSMAN, WI	RPG	MKX	WR9965		1		1	
MINNEAPOLIS	CHANHASSEN, MN	RPG	MPX	WR9658		1		1	
NCL MICHIGAN	GAYLORD, MI	RPG	APX	WR9610		1		1	
NORTH PLATTE	NORTH PLATTE, NE	RPG	LBF	WR9562		1		1	
NORTHERN INDIANA	NORTH WEBSTER, IN	RPG	IWX	WR9534		1		1	

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
OMAHA	VALLEY, NE	RPG	OAX	WR9553		1	2	1
PLEASANT HILL	PLEASANT HILL, MO	RPG	EAX	WR9446		1		1
PUEBLO	PUEBLO, CO	RPG	PUB	WR9464		1	2	1
QUAD CITIES	DAVENPORT, IA	RPG	DVN	WR9544		1		1
RAPID CITY	RAPID CITY, SD	RPG	UNR	WR9662		1		1
RIVERTON/LANDER	RIVERTON, WY	RPG	RIW	WR9576		1		1
SIOUX FALLS	SIOUX FALLS, SD	RPG	FSD	WR9651		1		1
SPRINGFIELD	SPRINGFIELD, MO	RPG	SGF	WR9440		1		1
ST LOUIS	WELDON SPRING, MO	RPG	LSX	WR9971		1		1
TOPEKA	TOPEKA, KS	RPG	TOP	WR9456		1		1
WICHITA	WICHITA, KS	RPG	ICT	WR9450		1		1
Western Region								
BILLINGS	BILLINGS, MT	RPG	BYZ	WT9677		1		1
BOISE	BOISE, ID	RPG	BOI	WT9681		1		1
CEDAR CITY	SALT LAKE CITY, UT	RPG	SLC	WT9932		1		1
ELKO	ELKO, NV	RPG	LKN	WT9903		1		1
EUREKA (BUNKER HILL)	EUREKA, CA	RPG	EKA	WT9594		1		1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
FLAGSTAFF	BELLEMONT, AZ	RPG	FGZ	WT9375		1		1
GLASGOW	GLASGOW, MT	RPG	GGW	WT9768		1		1
GREAT FALLS	GREAT FALLS, MT	RPG	TFX	WT9950		1		1
LAS VEGAS	LAS VEGAS, NV	RPG	VEF	WT9386		1		1
LOS ANGELES	OXNARD, CA	RPG	LOX	WT9295		1		1
MEDFORD	MEDFORD, OR	RPG	MFR	WT9597		1		1
MISSOULA	MISSOULA, MT	RPG	MSO	WT9773		1		1
PENDLETON	PENDLETON, OR	RPG	PDT	WT9688		1		1
YUMA	PHOENIX, AZ	RPG	PSR	WT9278		1		1
PHOENIX	PHOENIX, AZ	RPG	PSR	WT9278		1		1
POCATELLO	POCATELLO, ID	RPG	PIH	WT9578		1		1
PORTLAND, OR	PORTLAND, OR	RPG	PQR	WT9698		1		1
RENO	RENO, NV	RPG	REV	WT9488		1		1
SACRAMENTO	SACRAMENTO, CA	RPG	STO	WT9914		1		1
SALT LAKE CITY	SALT LAKE CITY, UT	RPG	SLC	WT9932		1		1
SANTA ANA MTS	SAN DIEGO, CA	RPG	SGX	WT9918		1		1
SAN DIEGO	SAN DIEGO, CA	RPG	SGX	WT9918		1		1
SAN FRANCISCO	MONTEREY, CA	RPG	MTR	WT9933		1		1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
SAN JOAQUIN VALY	HANFORD, CA	RPG	HNX	WT9389		1		1
SEATTLE	SEATTLE, WA	RPG	SEW	WT9922		1		1
SPOKANE	SPOKANE, WA	RPG	OTX	WT9785		1		1
TUCSON	TUCSON, AZ	RPG	TWC	WT9274		1		1
Miscellaneous								
NRC #2	KANSAS CITY, MO	RPG	NRCM7	WG9163		1		1
NRC #1	KANSAS CITY, MO	RPG	NRCM7	WG9163		1		1
NWSHQ TESTBED	SILVER SPRING, MD	RPG		WG9310		1		1
PRC RPG	RESTON, MD	RPG	PRCV2	WG9310		1		1
ROC DOD RPG (KREX)	NORMAN, OK	RPG		WG9410	1			1
WDTB RPG	NORMAN, OK	RPG		WG9410		1		1
ROC4 NWS RPG	NORMAN, OK	RPG		WG9410		1		1
ROC3 NWS RPG	NORMAN, OK	RPG		WG9410		1		1
ROC FAA REDUNDANT (RPG 2)	NORMAN, OK	RPG	CRIO2	WG9410	1			1
ROC FAA REDUNDANT (RPG 1)	NORMAN, OK	RPG	CRIO2	WG9410	1			1
SHANGHAI, CHINA	SHANGHAI, CHINA	RPG						
TAIPEI, TAIWAN	TAIPEI, TAIWAN	RPG						

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
TRAINING CENTER #2 NWSTC	KANSAS CITY, MO	RPG	TTCM7	WB9612		1		1
TRAINING CENTER #1 NWSTC	KANSAS CITY, MO	RPG	TTCM7	WB9612		1		1
DoD								
ALTUS AFB	FREDERICK, OK	RPG	FDR	FE4419	1			1
ANDERSEN AFB	ANDERSEN AFB, GU	RPG	UAM	FE5240	1			1
BEALE AFB	OROVILLE, CA	RPG	BBX	FE4686	1			1
CAMP HUMPHREYS	CAMP HUMPHREYS, KO	RPG	PTK	FI5294	1			1
CANNON AFB	FIELD, NM	RPG	FDX	FE4855	1			1
COLUMBUS AFB	GREENWOOD SPRINGS, MS	RPG	GWX	FE3022	1			1
DOVER AFB	ELLENDALE STATE FOREST, DE	RPG	DOX	FE4497	1			1
DYESS AFB	MORAN, TX	RPG	DYX	FE4661	1			1
EDWARDS AFB	BORON, CA	RPG	EYX	FE2805	1			1
EGLIN AFB	RED BAY, FL	RPG	EVX	FE2823	1			1
FT CAMPBELL	TRENTON, KY	RPG	HPX	FY4812	1			1
FT DRUM	MONTAGUE, NY	RPG	TYX	FY4846	1			1
FT HOOD	GRANGER, TX	RPG	GRK	FY4824	1			1
FT POLK	FT POLK, LA	RPG	POE	FY4825	1			1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
FT RUCKER	ECHO, AL	RPG	EOX	FY4805	1			1
HOLLOMAN AFB	RUIDOSO, NM	RPG	HDX	FE4801	1			1
KADENA AB	KADENA AB, JA	RPG	KAD	FH5270	1			1
KEESLER AFB MNTC TRNG B	KEESLER AFB, MS	RPG	BIX	FE3010	1		1	1
KEESLER AFB MNTC TRNG A	KEESLER AFB, MS	RPG	BIX	FE3010	1			1
KUNSAN AB	KUNSAN AB, KO	RPG	KUZ	FH5284	1			1
LAJES AB	SANTA BARBARA, AZR	RPG	PLA	FE4486	1			1
LAUGHLIN AFB	BRACKETVILLE, TX	RPG	DFX	FE3099	1			1
MAXWELL AFB	CARRVILLE, AL	RPG	MXX	FE3300	1			1
MINOT AFB	DEERING, ND	RPG	MBX	FE4528	1			1
MOODY AFB	SOUTH STOCKTON, GA	RPG	VAX	FE4830	1			1
ROBINS AFB	JEFFERSONVILLE, GA	RPG	JGX	FE2067	1			1
VANCE AFB	CHEROKEE, OK	RPG	VNX	FE3029	1			1
VANDENBERG AFB	ORCUTT, CA	RPG	VBX	FE4610	1			1

FAA

ANCHORAGE FAA (RPG 2)	KENAI, AK	RPG	AHG	6901AJ	1			1
ANCHORAGE FAA (RPG 1)	KENAI, AK	RPG	AHG	6901AJ	1			1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
BETHEL FAA (RPG 2)	BETHEL, AK	RPG	ABC	690112	1			1
BETHEL FAA (RPG 1)	BETHEL, AK	RPG	ABC	690112	1			1
FAIRBANKS FAA (RPG 2)	FAIRBANKS, AK	RPG	APD	690178	1			1
FAIRBANKS FAA (RPG 1)	FAIRBANKS, AK	RPG	APD	690178	1			1
KAMUELA/KOHALA APT(RPG 2)	KAMUELA, HI	RPG	HKM	699235	1			1
KAMUELA/KOHALA APT(RPG 1)	KAMUELA, HI	RPG	HKM	699235	1			1
KING SALMON FAA (RPG 2)	KING SALMON, AK	RPG	AKC	690137	1			1
KING SALMON FAA (RPG 1)	KING SALMON, AK	RPG	AKC	690137	1			1
MIDDLETON ISLAND (RPG 2)	MIDDLETON ISLAND, AK	RPG	AIH	690140	1			1
MIDDLETON ISLAND (RPG 1)	MIDDLETON ISLAND, AK	RPG	AIH	690140	1			1
MOLOKAI FAA (RPG 2)	MOLOKAI, HI	RPG	HMO	699213	1			1
MOLOKAI FAA (RPG 1)	MOLOKAI, HI	RPG	HMO	699213	1			1
NOME FAA (RPG 2)	NOME, AK	RPG	AEC	690147	1			1
NOME FAA (RPG 1)	NOME, AK	RPG	AEC	690147	1			1
SAN JUAN FAA (RPG 2)	SAN JUAN, PR	RPG	JUA	69F362	1			1
SAN JUAN FAA (RPG 1)	SAN JUAN, PR	RPG	JUA	69F362	1			1
SITKA FAA (RPG 2)	BIORKA ISLAND, AK	RPG	ACG	690141	1			1
SITKA FAA (RPG 1)	BIORKA ISLAND, AK	RPG	ACG	690141	1			1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	ORG Code	Kit A	Kit B	Kit C	Kit D
SOUTH KAUAI FAA (RPG 2)	SOUTH KAUAI, HI	699211	1			1
SOUTH KAUAI FAA (RPG 1)	SOUTH KAUAI, HI	699211	1			1
SOUTH SHORE FAA (RPG 2)	NAALEHU, HI	699201	1			1
SOUTH SHORE FAA (RPG 1)	NAALEHU, HI	699201	1			1

ATTACHMENT 10

TCP/IP SERIAL HARDWARE UPGRADE COMPLETION FORM

DoD and FAA only will complete this form
NWS report completion in EMRS

Site Name: _____

Site Identifier: _____

Total Time to Complete this Modification Document: _____

Technician's Name(s): _____

Technician's Phone Number: _____

Date Completed: _____

Equipment Modified (SID) RPG _____

Problem(s) Encountered:

Upon completion of this form, return the information to the ROC using one of the four methods below:

1. Mailing Address: Program Branch, Retrofit Management Team
WSR-88D Radar Operation Center
3200 Marshall Ave., Suite 101
Norman, OK 73072-8028
2. FAX Number: (405) 366-6553
ATTN: Retrofit Management Team
3. E-mail Address: NEXRAD.Logistics@noaa.gov
4. Web Version: <http://www.roc.noaa.gov/ssb/logistics/completion.asp>

ATTACHMENT 11 - SAMPLE EMRS REPORT

A26 Detail Form - ESCM2, SILVER SPRING, MD :: EMRS ANALYST - Microsoft Internet Explorer									
New A26 Commit A26 Place on Hold Copy A26 Delete A26 Detail Report Preference Document Summary Help									
GENERAL INFORMATION									
NEW RECORD		WFO* APX		Document No.* APX30213002					
1. Open Date	Open Time	2. Op Initials	3. Response Priority		4. Close Date		Close Time		
<input type="text"/>	<input type="text"/>	WSH	<input type="radio"/> Immediate <input type="radio"/> Low <input type="radio"/> Routine <input checked="" type="radio"/> Not Applicable		<input type="text"/>		<input type="text"/>		
5. Maintenance Description 442 characters left RPG serial cable upgrade for Point-to-Point protocol (PPP)									
EQUIPMENT INFORMATION									
6. Station ID*	7. Equipment Code	8. Serial Number			9. TM	10. AT	11. How Mal		
APX	RPG	DC018			M	M	999		
Alert: Time Remaining: (For Block 12 use only)									
12. EQUIPMENT OPERATIONAL STATUS TIMES									
Fully Operational		Partially Operational		Not Operational					
a. Fully Operational		b. Logistic Delay		c. All Other		d. Logistic Delay		e. All Other	
Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13. PARTS USAGE and CONFIGURATION MANAGEMENT REPORTING									
ASN	Vendor Part No. (New Part)	Serial Number (Old Part)		Serial Number (New Part)					
<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>					
						<input type="button" value="New Row"/> <input type="button" value="Delete Row"/>			
14. WORKLOAD INFORMATION									
a. Routine		b. Non-Routine		c. Travel		d. Misc		e. Overtime	
Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	7 30	<input type="text"/>	<input type="text"/>
MISCELLANEOUS INFORMATION									
15. Maintenance Comments 664 characters left Installed serial cable upgrade for Point to Point protocol I.A.W. NEXRAD Mod Note 65									16. Tech Initials
									<input type="text"/>
17. SPECIAL PURPOSE REPORTING INFORMATION									
a. Mod No.	b. Mod Act/Deact Date	c. Block C	d. Trouble Ticket No.	e. Block E					
65	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>					
<input type="button" value="Commit A26"/> <input type="button" value="Place on Hold"/> <input type="button" value="Copy A26"/> <input type="button" value="New A26"/> <input type="button" value="Cancel"/>									